DOCUMENT RESUME

ED 153 124 CG 012 373

AUTHOR Macklin, Michael; And Others
TITLE Adolescent Socialization and Heterosexual Behavior.
INSTITUTION Battelle Memorial Inst., Seattle, Wash. Population Study Center.
PUB DATE Dec 77
NOTE 80p.

EDRS PRICE MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS *Adolescents; Attitudes; *Behavior Patterns; *Contraception; *Dating (Social); Individual Development; Longitudinal Studies; Research Proposals; *Sexuality; *Social Development; Socialization; Social Opportunities

ABSTRACT

This research plan focuses on selected determinants of sexual behavior and contraceptive use for a stratified quota sample of adolescent boys and girls. Attention is concentrated on the socialization processes through which these youth develop attitudes toward heterosexual behavior and the ways in which these attitudes as well as situational opportunities to engage in heterosexual behavior produce variations in patterns of heterosexual interaction during the adolescent years. The research is guided by an analytic model of the stages of heterosexual behavior, which include (1) cross-sex friendships; (2) dating; (3) sexual foreplay; (4) coitus without contraception; and (5) coitus with contraception. Behavior within these stages, as well as the probability of transition from one stage to another, is hypothesized to result most directly from the interaction of the adolescent's attitudes and opportunities related to heterosexual conduct. The study design incorporates longitudinal as well as cross-sectional procedures. Parents and peers, in addition to the adolescents, provide a "triangulated" perspective on the influences and processes through which sexual attitudes and opportunities are developed and the conditions under which patterns of heterosexual behavior are formed. (Author)

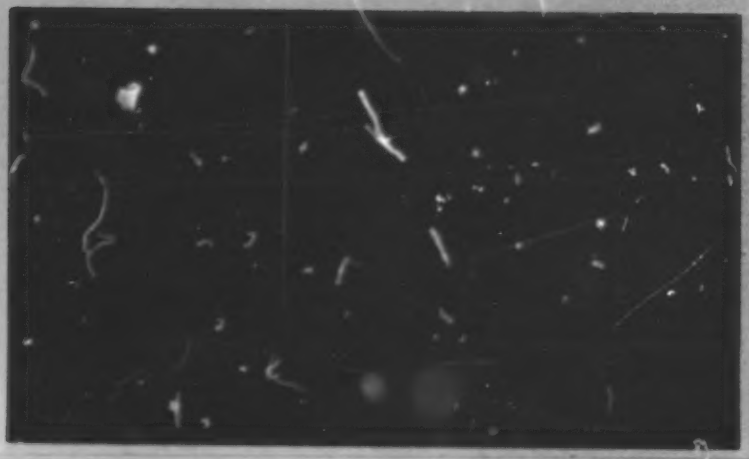
**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED153124

Battelle

Human Affairs Research Centers
4000 N.E. 41st Street/Seattle, Washington 98105

# Population Study Center



U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
M. Michlin

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND TO USERS OF THE ERIC SYSTEM."

CG 012 373

## Battelle Memorial Institute

In his last will and testament, Gordon Battelle, an Ohio industrialist, specified that a Battelle Memorial Institute be established as a memorial to his family. Battelle Memorial Institute was formed in 1925 as an Ohio not-for-profit, public-purpose organization charged generally by its founder to engage in research, assist in the education of man, and to develop, license and dispose of technology. Battelle's efforts are directed toward using science and technology for the betterment of mankind. In the past, this has been achieved primarily through research and development in the physical and life sciences and engineering related to the problems of industry and government. However, increasing emphasis is being placed on combining the behavioral and social sciences with the extensive resources of the Institute to help solve problems of significance to society.

Major research and development laboratories are located in Richland, Washington; Columbus, Ohio; Frankfurt, Germany; and Geneva, Switzerland. Corporate headquarters are in Columbus. In addition, the Battelle Seattle Research Center sponsors seminars on a wide range of issues and provides facilities and fellowships for visiting scientists to do theoretical research and writing. The total complement of over 5000 Battelle staff members has an established record of research accomplishments in more than 75 countries.

## Battelle Human Affairs Research Centers

Within recent years it has become increasingly apparent that solutions of major problems of man in society require highly focused research and development efforts involving many scientific disciplines. The primary objective in establishing the Battelle Human Affairs Research Centers (HARC) is to provide a way to integrate and focus the engineering, physical, life, social and behavioral science resources of Battelle for program planning and research in selected problem areas. HARC will also provide behavioral and social science support for physical and life sciences research programs of Battelle.

Because of Battelle's continuing concern with the education of man, close university liaison is being maintained. It is possible for both faculty and graduate students to participate in the HARC programs.

The Human Affairs Research Centers are composed of a number of research and study centers, each focused on a specific societal problem area. A consultant panel of distinguished scientists, administrators and government officials work with Battelle staff members and have evolved the initial HARC structure and concept. Similar panels are helping to establish and are providing continuing guidance to the individual study centers.

# ADOLESCENT SOCIALIZATION AND HETEROSEXUAL BEHAVIOR

Michael Micklin
Elizabeth Thomson
Jacqueline S. Gardner
Battelle Human Affairs Research Centers

December, 1977

TABLE OF CONTENTS


A. INTRODUCTION

1. Objective. . . . . 1
2. Background . . . . . 1
   a. Significance of the Problem . . . . . 1
   b. Previous Research . . . . . 2
3. Rationale. . . . . 11
   a. Stages of Heterosexual Behavior . . . . . 11
   b. Determinants of Heterosexual Behavior . . . . . 14
   c. Determinants of Adolescent Attitudes toward Heterosexual Behavior . . . . . 16
   d. Determinants of Internalized Norms and Beliefs. . . 17
   e. Determinants of Opportunities for Heterosexual Behavior. . . . . 19

B. SPECIFIC AIMS. . . . . 26

C. METHODS OF PROCEDURE

1. Research Design. . . . . 27
   a. Sampling Units. . . . . 27
   b. Sample Parameters: Age, Sex, and Socioeconomic Status (SES). . . . . 30
   c. Cross-sectional and Longitudinal Aspects. . . . . 31
2. Advisory Groups: Adults and Adolescents. . . . . 34
3. Sample Selection . . . . . 35
4. Interviewer Selection and Training . . . . . 37
5. Development of the Questionnaire . . . . . 38
6. Data Collection Procedures . . . . . 39
7. Operational Measures . . . . . 40
   a. Norms of Significant Others . . . . . 40
   b. Adolescent Perceptions of Norms of Significant Others. . . . . 41
   c. Norms Internalized by Adolescents . . . . . 42
   d. Beliefs of Significant Others . . . . . 42
   e. Adolescent Perceptions of Beliefs of Significant Others. . . . . 44

TABLE OF CONTENTS (cont.)


f. Beliefs Internalized by Adolescents. . . . . 44
g. Adolescent's Attitude Toward Heterosexual Behavior . . . . . 44
h. Parent-Adolescent Interaction. . . . . 45
i. Peer-Adolescent Interaction. . . . . 47
j. Constraints on Opportunities to Engage in Heterosexual Interaction . . . . . 48
k. Adolescent Perceptions of Opportunities to Engage in Heterosexual Behavior . . . . . 48
l. Heterosexual Behavior. . . . . 49
m. Background Variables . . . . . 50
8. Data Reduction Procedures . . . . . 51
9. Data Management . . . . . 52
10. Statistical Analysis. . . . . 52
11. Human Subjects. . . . . 59
a. Risks to Human Subjects. . . . . 59
b. Benefits of Research . . . . . 62
D. SIGNIFICANCE OF THE RESEARCH. . . . . 63
1. Determination and Measurement of States of Heterosexual Behavior . . . . . 63
2. Identification of Sex and Age Differences in Heterosexual Behavior and Contraceptive Use . . . . . 63
3. Relationship of Socialization Processes to Patterns of Heterosexual Behavior and Contraceptive Use. . . . 64
4. Determination of Antecedents of Adolescent Heterosexual and Contraceptive Behavior That May Be Susceptible to Policy Manipulation. . . . . 64
5. Explanation of Actual Pregnancy Outcomes. . . . . 65
6. Determination of Contraceptive Needs Specific to Adolescents . . . . . 65
7. Further Investigation Into Processes of Adolescent Socialization in General. . . . . 66
8. Development and Application of Improved Measurement Techniques. . . . . 66
E. REFERENCES. . . . . 67

ABSTRACT

This research focuses on selected determinants of sexual behavior and contraceptive use for a stratified quota sample of adolescent boys and girls. Attention is concentrated on the socialization processes through which these youth develop attitudes toward heterosexual behavior and the ways in which these attitudes as well as situational opportunities to engage in heterosexual behavior produce variations in patterns of heterosexual interaction during the adolescent years. The research is guided by an analytic model of the stages of heterosexual behavior which include (1) cross-sex friendships, (2) dating, (3) sexual foreplay, (4) coitus without contraception, and (5) coitus with contraception. Behavior within these stages, as well as the probability of transition from one stage to another, is hypothesized to result most directly from the interaction of the adolescent's attitudes and opportunities related to heterosexual conduct. Adolescent attitudes are a function of internalized norms and beliefs, which stem from norms and beliefs transmitted through socialization processes as well as from the adolescent's idiosyncratic perceptions and experiences. Opportunities to engage in heterosexual behavior are determined by the interaction of several factors, primarily constraints imposed by interpersonal relationships, temporal and locational settings, and cultural contexts. The study design incorporates longitudinal as well as cross-sectional procedures. The longitudinal component will be focused on adolescents 12/13 and 14/15 years of age at the beginning of the study. Interviews will be conducted annually over a three-year period with the adolescents, their parents, one same-sex friend, and one cross-sex friend. Cross-sectional comparisons will be amplified through the inclusion of a sample of 16/17-year-olds during the first year of the study and a sample of 12/13-year-olds during the third year. By including parents and peers in addition to the adolescents, we will provide a "triangulated" perspective on the influences and processes through which sexual attitudes and opportunities are developed and the conditions under which patterns of heterosexual behavior are formed.

## A. INTRODUCTION

This paper is a revision of a research proposal submitted to, and subsequently funded by, the Center for Population Research of the National Institute for Child Health and Human Development. A severely abbreviated description of the project was presented at the Annual Meeting of the American Psychological Association, August 1977, in San Francisco. In response to numerous requests for copies of the APA presentation, we are providing this up-dated and comprehensive discussion of the theory and methods guiding this research. It should be noted that the present level of funding allows only for conduct and analysis of the first round of interviews. Although we hope to be able to complete the entire project as described here, this will depend upon subsequent funding decisions.

### 1. OBJECTIVE

This research is focused on two critical determinants of adolescent pregnancy: heterosexual behavior and contraceptive behavior. The primary objective is to identify the mechanisms through which adolescent socialization processes influence attitudes and opportunities related to heterosexual interaction and contraceptive use, and to assess the relationships between these antecedent conditions and the progression of sexual "careers" during the adolescent years.

### 2. BACKGROUND

#### a. Significance of the Problem

In recent years researchers, policymakers, and the public have become increasingly concerned with patterns and consequences of adolescent sexual behavior. The public's interest stems not only

from personal concerns voiced by parents of these adolescents--e.g., risk of pregnancy or venereal disease (Libby and Nass, 1971)--but also from the fact that norms regulating sexual activity are components of all human societies (Davis, 1976). These norms govern who may or may not engage in sexual activity, with whom, at which times, in which locations, and under what conditions.

Policymakers exhibit more pragmatic concerns. Adolescent sexual activity increases the likelihoood of pregnancy and childbearing. Adolescent motherhood (or fatherhood) is problematic in that youth are not typically prepared--psychologically, socially, or economically--to assume the responsibilities of parenthood, nor do they typically show much desire to do so, even after the fact (Oppel and Royston, 1971; Furstenberg, 1976b). The burden of support for the off-spring of adolescent pregnancy must often be assumed by the state (Cutright, 1972). In addition, early pregnancy and childbearing may prevent the young mothers and fathers from achieving their educational and vocational potential (Trussel, 1976). Finally, there is evidence to suggest that teenage pregnancy reduces the life chances of both mothers and their children (Campbell, 1968; Furstenberg, 1976b). For these reasons policymakers have encouraged research on the social, cultural, and psychological factors associated with adolescent sexual activity, pregnancy, and childbearing. If these critical variables can be manipulated through policy decisions, then perhaps rates of adolescent pregnancy and/or childbearing can be reduced and harmful social and personal consequences lessened.

b. Previous Research

While a number of studies have been focused on various dimensions of adolescent sexual and contraceptive behavior, the principal emphasis has been on the provision of descriptive information. Further, the large majority of these studies have been conducted with clients of contraceptive or abortion clinics

or with adolescent mothers, all women who are or imminently intend to become sexually active (e.g., Furstenberg, 1976b). While this research is most useful for establishing the magnitude and parameters of the problem, it does not take us very far in accounting for variations in the behavior observed. Neither does it tell us about adolescents who are not sexually active. The following summary of these findings is meant to be illustrative rather than exhaustive.

## Patterns and Consequences of Adolescent Sexual Behavior

Zelnik and Kantner (1972: 373) summarized their report to the Commission on Population Growth and the American Future as follows:

> Overall, [among teenagers] there is evidence of fairly widespread sexuality, pervasive misinformation about the risk of pregnancy, a high degree of unprotected coitus, and a good bit of pregnancy, most of which appears to have been unwanted at least at conception--but without recourse to abortion.

A review of current literature illustrates that this summary characterizes the situation well, even with increased national emphasis upon sex education and contraception for adolescents. Several investigators estimate a high prevalence of coital experience among unmarried adolescent girls (approximately 30% for all ages) and of premarital coital experience among ever-married adolescents (58% for all ages) (Zelnik and Kantner, 1972; Vener and Stewart, 1974). Zelnik and Kantner (1974) estimate that of all 15- to 19-year-olds who have had a first pregnancy, 75% became pregnant premaritally, and that 9% of all 15- to 19-year-old girls experience a premarital pregnancy. High illegitimacy ratios (number of illegitimate births/1000 live births) are characteristic of adolescents, and while both U.S. birth rates and illegitimacy rates decreased overall between 1973 and 1974, 15- to 19-year-old Whites experienced a 4% increase in illegitimate births (National Center for Health Statistics, 1975).

The reported rate of venereal disease has steadily increased for the past several years and a sizeable portion of this increase is among teenagers (Center for Disease Control, 1976). Perhaps one change which has occurred since Zelnik and Kantner's capsule summary is in the "recourse to abortion" area, with ten states in 1973 reporting that abortions outnumbered live births for girls under 15 years of age, and that generally high ratios of abortions to live births occur in girls under 19 years of age (Center for Disease Control, 1975).

Several studies of various characteristics of adolescent sexual behavior help to define patterns of sexual activity. The age at first intercourse is young and decreasing (Zelnik and Kantner, 1972a, 1972b; Vener and Stewart, 1974). The "critical age" for initiation of intercourse--that is, the point in the life cycle at which significant increases in the prevalence of coital activity are evident--generally appears to be about 15, but Vener and Stewart (1974) found significant differences in participation by 14-year-olds over three years (also see Zelnik and Kantner, 1972b). "Beginning" sexual activities, such as petting, occur at all ages in adolescents (Sorenson, 1973; Vener and Stewart, 1974). Vener and Stewart (1974) distinguish between eight progressive stages of sexual activity from hand holding through coitus with two or more partners. They found a high rate of participation of girls in all levels of activity through "petting above the waist," after which the patterns closely followed the age relationship for sexual intercourse (see below).

The stereotype of promiscuity among teenagers is a myth. The large majority of adolescent sexual relationships are monogamous or serially monogamous (Zelnik and Kantner, 1972a; Sorenson, 1973; Vener and Stewart, 1974). Reported frequency of intercourse varies between studies, but one finding is consistent throughout: adolescent sexual behavior is episodic and seemingly unpredictable, a fact of great importance to the effectiveness of contraceptive use (see, for example, Zelnik and Kantner, 1972a).

All of the behavior and consequences discussed thus far vary by age and race, with prevalence of all levels of sexual activity, frequency of coitus, number of partners, etc., increasing with age (Zelnik and Kantner, 1972a; Sorenson, 1973; Vener and Stewart, 1974). This age relationship holds for both Whites and Blacks, but differences in magnitude are generally evident between the two groups, with higher proportions of Blacks than Whites in each age category for each activity or consequence. There are some exceptions to this generalization, such as the increase in White illegitimacy rates cited above, the absence of a clear relationship between age of the girl and number of sexual partners for Blacks, and a slight tendency for Blacks to have had fewer partners at older ages (Zelnik and Kantner, 1972). It is worthy to note that all of the studies of adolescent sexual behavior that were reviewed are restricted either to Blacks, Whites, or a comparison of the two. There appears to have been virtually no research with adolescents of other racial groups except in the area of contraceptive use (see below). In addition, few studies have examined the sexual and contraceptive behavior of adolescent males in any detail.

Adolescent Contraceptive Behavior

As stated previously, adolescent sexual behavior is generally sporadic and characterized by a high degree of risk-taking in the form of unprotected coitus. Teenage contraceptive use patterns have been characterized as "irrational" (Cvetkovich et al., 1975). Seventy-nine percent of sexually active 15- to 19-year-old girls in a national survey reported that they "never" or "only sometimes" used contraception (Shah et al., 1975). Several studies based upon local samples report similar findings (Goldsmith et al., 1972; Settlage et al., 1973; Evans et al., 1976; Akpom et al., 1976). There does not appear to be a significant difference between Blacks and Whites in the consistency of contraceptive use. The proportion of "never" users decreases with age and the

proportion of "sometimes" users and of girls who used contraception at last intercourse increases with age, but there is no consistent age trend for "always" users (Zelnik and Kantner, 1973). The proportion of women who have ever used contraception increases with education attainment (Zelnik and Kantner, 1973), with sexual experience--which is related to age (Zelnik and Kantner, 1972; Akpom et al., 1976; Settlage et al., 1973; Evans et al., 1976), and with prior experience of pregnancy (Furstenberg, 1976a; Evans et al., 1976), but not with a previous suspected pregnancy which was negated by examination (Evans et al., 1976). Most investigators have noted a considerable delay between initiation of intercourse and initiation of contraception (Zelnik and Kantner, 1972a; Akpom et al., 1976; Goldsmith, 1972; Settlage et al., 1973; Sorenson, 1973). Zelnik and Kantner (1972a) found that the later a woman begins sexual activity, the more likely she is to initiate contraception at the same age, but that there is "a tendency as time advances for a person who is sexually active to 'regress' toward the 'sometimes' category." Even among 19 year old Whites, who appear generally to be the most consistent contraceptors, only 26% of Zelnik and Kantner's respondents reported that they always use contraception.

Contraception at early ages is characterized by use of less effective methods--e.g., withdrawal and douching--and, throughout all age and racial groups, by heavy reliance upon "male" methods, e.g., condoms and withdrawal (Goldsmith et al., 1972; Akpom et al., 1976; Settlage et al., 1973; Evans et al., 1976; Zelnik and Kantner, 1972a; Finkel and Finkel, 1975). The prevalence of use of "female methods, such as oral contraceptives and IUD's, increases with age, with sexual experience, and with prior pregnancy (Furstenberg, 1976a; Evans et al., 1976; Zelnik and Kantner, 1972a; Sorenson, 1973). Blacks appear to begin use of the more effective methods earlier than Whites (Zelnik and Kantner, 1972a).

Numerous studies report that the most frequently cited reasons for nonuse of contraception by sexually active adoles ents is the genuine disbelief that they could become pregnant and/or a lack of knowledge about when they are at greatest risk as well as ignorance of specific contraceptive methods and where to obtain them (Zelnik and Kantner, 1972a; Reichelt and Werley, 1975; Evans et al., 1976; Furstenberg, 1976a; Sorenson, 1973). This lack of krowledge persists even among girls who have been exposed to school-based sex education classes (Goldsmith et al., 1972), though it is reduced somewhat following clinic-based sex education classes (Reichelt and Wesley, 1975).

The next most frequently cited reasons for nonuse of contraception can be grouped under problems of contraceptive acceptability and accessibility. This category of problems includes some very concrete issues of service and supply accessibility, cost, etc. However, it is here and in the "disbelief" category that the complexities of adolescent contraceptive use are most evident. The use of contraception requires some form of preparation which implies that the likelihood of sexual activity and the possibility of a resulting pregnancy are recognized and accepted. This appears to be the area of major difficulty for teenagers. The feeling that "birth control makes sex seem planned," which is seen to be a negative attribute, was a recurring theme throughout many studies (Sorenson, 1973; Goldsmith et al., 1972; Finkel and Finkel, 1975). Conflicts of attitudes and behavior are evident in several studies. The following statement of the problem by Goldsmith et al. (1972: 35) is typical:

> Guilt about sex and denial of risk are evident in the answers "pregnancy would never happen to me" and "I'd feel that I shouldn't have intercourse at all so I wouldn't plan ahead to do it or to use birth control." These attitudes generally result from an upbringing in which the virginity code has been stressed without a discussion of reasons, risks, and alternate viewpoints. When other pressures prevail, such as

adolescent physical desire and the love ethic of the counter-culture, the young woman reacts to her value-behavior discrepancy by a denial which baffles many adults.

The influence of "upbringing" is seen in other studies as well. Furstenberg (1976a) and Evans et al. (1976) found that contraceptive use was higher among girls whose mothers had specifically discussed sex and contraception with them. Evans et al. (1976) found that age at first intercourse was significantly younger in girls of households headed by females than in those from households headed by males. Sorenson (1973: 84) concluded that "parental concerns about dating and marriage may be crowding many adolescents into sexual activities earlier than would otherwise be the case."

Several studies have cited a desire to become pregnant, or at least "not minding" if pregnancy occurred, as a reason for nonuse of contraception (Zelnik and Kantner, 1972; Evans et al., 1976; Goldsmith et al., 1972; Furstenberg, 1976a). These studies must be evaluated cautiously, however, as all involved pregnant or post-pregnant girls queried about prepregnancy behavior. Furstenberg (1976: 151) suggests that "adolescents view pregnancy more favorably when it enhances, or at least does not diminish, their prospects of marriage."

These data pertaining to adolescent sexual and contraceptive behavior suggest several conclusions. First, adolescence is a period of increasing sexual activity, most of which goes unprotected by any sort of effective contraception. Second, the consequences of unprotected intercourse are reflected in high, and sometimes increasing, rates of adolescent pregnancy, illegitimacy, abortion, and venereal disease. Third, those adolescents who do use contraception do so in a rather haphazard and unsystematic fashion. Fourth, patterns of sexual and contraceptive behavior vary considerably by the adolescent's age, social status, and race, although racial differences have been extensively examined only for Blacks and Whites.

## Explanations of Adolescent Sexual and Contraceptive Behavior

The variations in sexual and contraceptive behavior described above have been explained by a variety of factors. Without doubt the most frequently proposed hypotheses are based upon variations in norms, attitudes, values, and beliefs (e.g., Burgess and Wallin, 1953; Ehrmann, 1959; Christensen, 1960, 1966; Christensen and Gregg, 1970). These approaches typically point to the importance of general cultural orientations toward sexual behavior, which vary by social status and racial/ethnic group, that are in varying degrees "internalized" by the individual as beliefs, values, attitudes, or personal norms. Such approaches often neglect, however, the fact that social structural arrangements, particularly within families, may influence the impact of these personal orientations on actual behavior.

A more comprehensive and thought-provoking approach has been developed by Ira Reiss (1967). While recognizing the influence of cultural norms and personal values on sexual conduct, Reiss also emphasizes the role of social control mechanisms within the family and the larger society. In summarizing his theory of premarital sexual permissiveness, Reiss (1967: 167) states that "The degree of acceptable premarital sexual permissiveness in a courtship group varies directly with the degree of autonomy of the courtship group and with the degree of acceptable premarital sexual permissiveness in the social and cultural setting outside the group." Stated otherwise, premarital sexual permissiveness, which can encompass a wide range of sexual conduct, is explained by the joint influence of structural constraints on behavior and culturally transmitted definitions of the forms of behavior that are acceptable.

The argument presented by Reiss is both conceptually sound and reasonably supported by evidence. Nevertheless, as Reiss himself suggests (1967: 170), the theory needs further elaboration and more extensive empirical verification. Some of the major issues yet to be addressed are as follows.

First, how do sexual permissiveness and its consequences vary among cultural groups? Reiss demonstrated some variation among White and Black samples, but how would the theory stand up if tested with other populations, e.g., Asian Americans, Mexican Americans, or Native Americans? Both cultural norms and family organization vary among these groups, and it would be instructive to test the Reiss theory within these contexts.

Second, what is the relative influence of structural constraints and normative standards? Reiss's analysis of his data indicates that these two factors are interrelated, but the statistical techniques employed do not permit separation of main effects from those due to interaction.

Third, how are orientations toward premarital sexual behavior transmitted from significant others (e.g., parents and peers) through the socialization process? This question was not a central concern for Reiss, but it is of crucial importance for an understanding of the development of sexual orientations and behavior. In this connection, it can be stated that little attention generally has been given to identifying the conditions under which youth alter their pattern of sexual behavior during the transition to adulthood. A recent discussion of the origins of sexual behavior states the issue rather concisely: "Acquisition of sexual culture . . . is probably the least well understood or attended aspect of sexual behavior . . . We know very little about how it is acquired or, for that matter, the ways in which it influences both our sexual and nonsexual lives" (Gagnon and Simon, 1973: 25). In short, who learns what from whom, under what conditions, and with what consequences?

Finally, what is the sequence of development of sexual behavior in adolescence? More specifically, what is the probability of transition from a less active to a more advanced stage of sexual behavior, and how is this probability affected by the

adolescent's age, sex, race, social status, attitudes and beliefs, autonomy, and other characteristics? Do some adolescents "regress" to earlier, less involved stages of sexual activity and, if so, under what conditions?

In conjunction with Reiss' pioneering work, the issues raised above suggest a new perspective for exploring adolescent sexual conduct. While accepting the dual influence of norms and structural constraints on sexual activity, this approach asks additional questions focusing on (1) social and cultural variations, (2) the relative significance of norms and structural constraints, (3) sources and mechanisms of socialization, and (4) sequential development. The research proposed below is designed to answer these questions.

## 3. RATIONALE

The problem we address is that of adolescent heterosexual development. Our specification of the issues involved is summarized by the model presented in Figure 1. This model can best be explained by proceding "backwards" from the dependent to the independent variables.

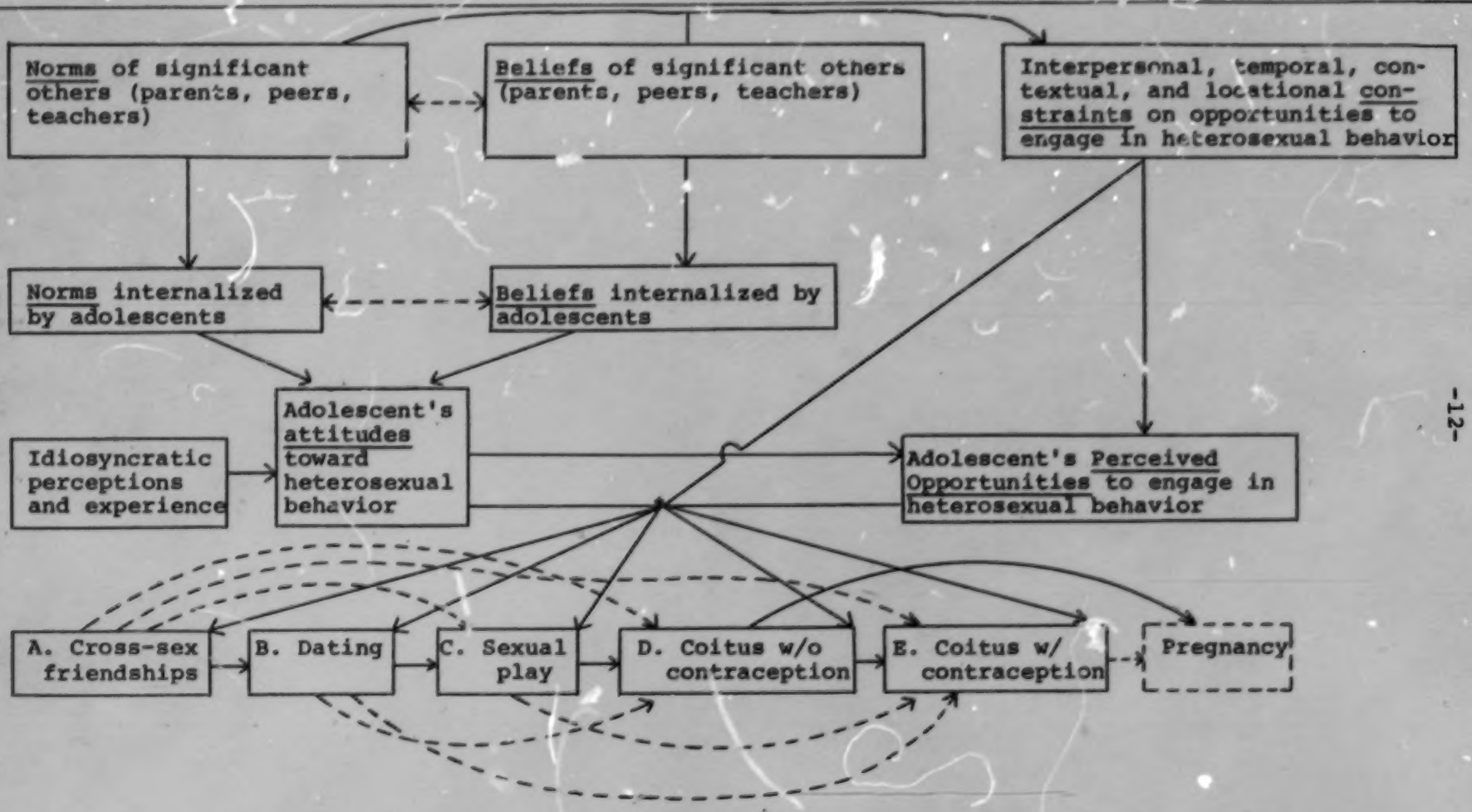
### a. Stages of Heterosexual Behavior

Five stages of behavior are identified, all of which are stated or implied in previous discussion of premarital sexual conduct (see Ehrmann, 1959; Reiss, 1960, 1967).

(1) Cross-sex friendships. These relationships generally begin with the later years of childhood, although in some cases they may be delayed until early adolescence.

(2) Dating. This arrangement constitutes the initial phase of the institutionalized courtship system in the United States as well as in many other countries. Dating

Figure 1. Stages of Heterosexual Behavior as Influenced by Attitudes and Opportunities


Norms of significant others (parents, peers, teachers)
Beliefs of significant others (parents, peers, teachers)
Interpersonal, temporal, contextual, and locational constraints on opportunities to engage in heterosexual behavior
Norms internalized by adolescents
Beliefs internalized by adolescents
Adolescent's attitudes toward heterosexual behavior
Idiosyncratic perceptions and experience
Adolescent's Perceived Opportunities to engage in heterosexual behavior
A. Cross-sex friendships
B. Dating
C. Sexual play
D. Coitus w/o contraception
E. Coitus w/ contraception
Pregnancy

*Indicates interaction of attitudes and opportunities in determination of heterosexual behavior.

typically begins during the first few years of adolescence and emerges out of the earlier pattern of cross-sex friendships. With the onset of adolescence, a youth typically experiences increasing autonomy and freedom from the control of parents. More significantly, this is the period when "....society first acknowledges the sexual character of the individual" (Gagnon and Simon, 1973: 46).

(3) Sexual play. Dating, especially when it takes the form of "monogamous" companionship, frequently leads to greater intimacy among young people. Several factors--growing biological urges, social pressures on young males to prove their "manhood," anticipation of adult roles, and increasing freedom of movement, among others--eventually create the conditions for increasing physical contact between the two companions. "Petting" is a frequent outcome.

(4) Coitus without contraception. As suggested earlier, a fairly sizeable proportion of adolescents begin sexual activity by age 15 or 16, though there is wide variation in the age at which it first takes place. With relatively few exceptions, early coitus is engaged in without benefit of contraception.

(5) Coitus with contraception. As the adolescent ages, the likelihood that some form of contraception will be employed, however irregularly, increases. If the adolescent girl continues to have coitus without contraception, she is increasingly likely to become pregnant. Regular use of contraceptives reduces the chances of pregnancy, but few adolescent girls (or boys) are so inclined.

There is nothing novel about the identification of these stages of heterosexual behavior. Indeed, they are so obvious they border upon being trivial. Nonetheless, there are two aspects of the sequencing of the stages that are empirically problematic. The first is the question of timing. How much variation is there in the ages during which an adolescent remains at one or another of these levels of sexual activity? Second, there is the issue suggested earlier of determining the transition probabilities for movement from earlier to later stages. Especially interesting is the likelihood of movement between stages that are not proximate to one another, e.g., from cross-sex friendship to sexual play. Also, there is the possibility of retrogressive movements, e.g., the adolescent girl who ceases having coitus and returns to nothing more than cross-sex friendships.

Of greatest significance, however, is the problem of identifying determinants of sexual behavior. What factors account for (1) variable behavior within any single stage, or (2) the pattern of movement among the stages of heterosexual conduct? Figure 1 presents several possibilities.

b. Determinants of Heterosexual Behavior

Following suggestions from Reiss (1967), heterosexual behavior is hypothesized to result from the interaction of (1) the adolescent's attitudes toward the behavior in question, (2) the constraints on opportunities (s)he has to engage in that behavior, and (3) the perception of those opportunities.

The hypothesis that attitudes--"generalized states of readiness for motivated behavior" (Newcomb et al., 1965: 45)--are related to overt behavior has a long and controversial history in sociology and social psychology (see Triandis, 1971: 14-21). Nevertheless, the attitude-behavior relationship is a fundamental concern for the social sciences generally, and no less so for students of sexual behavior. Our inclusion of the

attitude concept in this model, however, is based on one proviso frequently ignored by researchers. That is, attitudes must refer to some identifiable referent, in this case aspects of heterosexual behavior (see discussion of operational measures, below).

Whether or not a person will behave in a particular way is also partially dependent upon the opportunities available (see Merton, 1957; Cloward and Ohlin, 1960; cf. Nettler, 1974: 159-168). With regard to premarital sexual behavior, Reiss (1967: 173, fn. 21) has suggested the applicability of opportunity theory. For example, the father who restricts the autonomy of his adolescent daughter, e.g., by not permitting her to date, limits the degree of heterosexual involvement she can <u>legitimately</u> achieve.

Finally, structural limitations on opportunities are not always effective. On the one hand, people must perceive and interpret structural arrangements, and they do not always do so accurately. These faulty perceptions may result from inaccurate or insufficient information, <u>or</u> from the fact that the person's attitudes are such that s(he) is predisposed to perceive the situation erroneously. The adolescent daughter of the restrictive father in the example cited above may interpret the role prohibiting her from dating as "flexible," and proceed to go out with boys "on the sly." Thus the behavior occurs even though, from the father's perspective, the opportunity does not exist. On the other hand, the daughter may correctly perceive the rule restricting dating, but her attitude on the matter may lead her to go against it anyway.

It must be emphasized that the behavioral effects of the adolescent's attitudes, his/her opportunities, and the perception of these opportunities are interactive. Considering these variables in isolation, the behavior in question is more likely to occur if the attitude held toward that behavior is positive, the opportunity exists, and is correctly perceived. The fact that the "ideal" conditions for predicting the behavioral outcome do not necessarily correspond in the real world makes that prediction problematic.

c. Determinants of Adolescent Attitudes toward Heterosexual Behavior

There is as little agreement on the determinants of attitudes as there is on their definition. The perspective adopted here is that attitudes are the product of internalized norms and beliefs. Norms are typically associated with collective evaluations of what behavior should be, collective expectations of what behavior will be, or collective attempts to apply sanctions to shape conduct (Gibbs, 1965). As such, norms are components of social organization. However, individuals "personalize" norms through a process of internalization, i.e., by accepting collective standards as their own. Furthermore, there is "slippage" in the process of internalization, so that there is frequently a lack of complete correspondence between collective and personal standards. We will return to this point below. An example of a sexual norm is "people ought not to have intercourse prior to marriage."

Beliefs, on the other hand, refer to perceived relationships between two or more things, conditions, or events. For instance, the statement that "coitus without contraception is likely to result in pregnancy" reflects a sexual belief linking intercourse (an event) to pregnancy (a condition). Beliefs, then, indicate factual pieces of information, whether empirically true or not. In fact, many beliefs people hold are not even empirically testable, e.g., "God exists." Beliefs, like norms, are frequently personalized, and may vary from those held by others or the larger society.

Internalized norms and beliefs may be related to one another, though frequently unpredictably. In the realm of sexual behavior, an adolescent's belief that a douche following intercourse will always prevent pregnancy could produce a positive evaluation of this act. On the other hand, the same belief might be associated with a negative evaluation of douching after intercourse if a

societal evaluation that intercourse is bad has been internalized. The point is that internalized norms and beliefs frequently have independent and unpredictable effects on attitudes, and thus both elements must be considered when examining attitude formation and change.

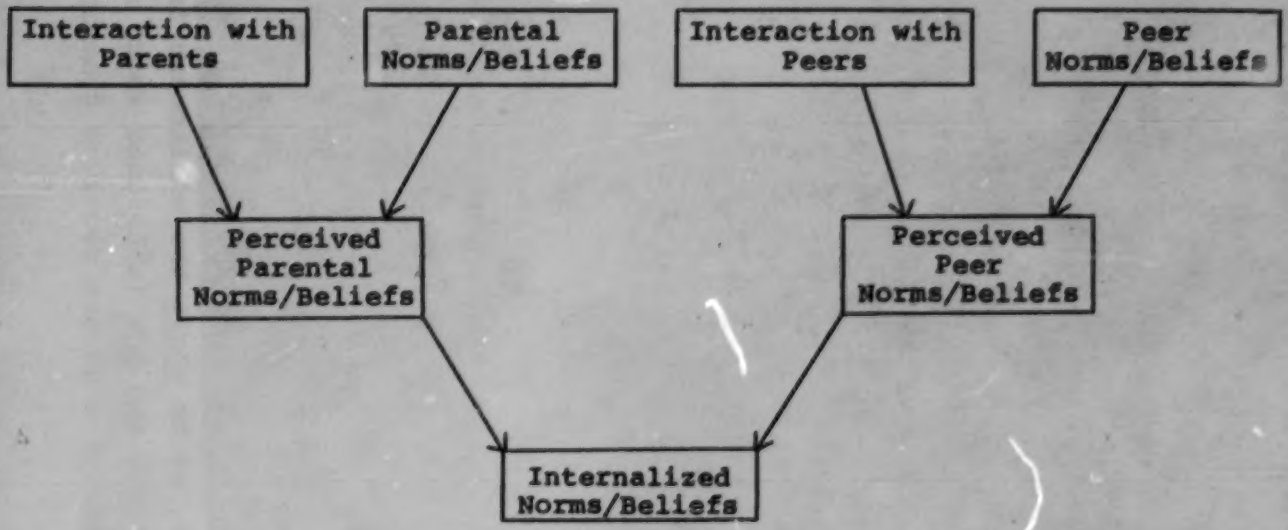
d. Determinants of Internalized Norms and Beliefs

Considering Figure 1 once again, it is apparent that internalized norms and beliefs are directly influenced by the corresponding norms and beliefs held by "significant others." "Significant others" is a categorical term including other people and reference groups with whom a person identifies in one way or another, as well as "agents of socialization," the individuals and groups that society charges with the responsibility of "civilizing" and managing youth. Various individuals and groups serve as transmitters of norms and beliefs, the primary examples in American society being parents, peers, teachers, public figures, and a large variety of membership groups (see Clausen, 1968; Goslin, 1969; and Zigler and Child, 1969).

The process of norm/belief transmission is more complicated than has been described thus far. In the first place, some significant others--e.g., parents and teachers--have institutionalized legitimation to mold the norms and beliefs of the young. However, it is well known that as a child ages, particularly during the adolescent years, peers replace parents and teachers as the primary sources of norms and values. Thus, there emerges a potential conflict between the ideas and standards offered by adults, particularly parents, and those offered by peers. It becomes problematic, then, as to where the adolescent is looking for his/her norms and beliefs and how (s)he goes about resolving the conflicting "messages" that are received concerning these norms and beliefs.

Figure 2 suggests a way of conceptualizing this process, generalized to cover both norm and value transmission. The adolescent is subjected to a variety of norms and beliefs from

Figure 2. Determinants of Adolescent's Internalization of Norms and Beliefs From Significant Others



parents and peers. (S)he also engages in a variety of interactions (relationships) with parents and peers that differ in terms of duration, location, timing, purpose, consequence, and a host of additional characteristics. The adolescent's perception of the norms and beliefs of these others (i.e., parents and peers) is thus a product of the degree and conditions of interaction, on the one hand, and the actual norms and beliefs held by the parent/peer, on the other. Finally, a particular norm or belief that is internalized is a second-order product of the perceived parental and peer norm or belief weighted by the adolescent's relative evaluation of these two "others." In short, internalized norms and beliefs are dependent upon at least four factors: (1) interactions with others, (2) the norms and beliefs of these others, (3) the perceived norms and beliefs of these others, and (4) the interaction of perceived norms and beliefs of these others weighted by an interpersonal evaluation factor for each significant other involved.

e. Determinants of Opportunities for Heterosexual Behavior

We have discussed above the role of opportunity in the translation of heterosexual attitudes into actual heterosexual behavior. This is, in order to behave in accordance with his/her heterosexual attitudes, the adolescent must have access to the arena of heterosexual activity. Although there is virtually no documentation of the opportunities available to the typical adolescent, we can begin to discuss the variations in opportunity due to different sources.

Depending on the stage of heterosexual interaction under examination, the parameters that define "opportunity" are more or less restrictive, i.e., include more or fewer situational conditions. For example, opportunities to develop cross-sex friendships may require only the presence of opposite-sex adolescents in one's classroom or peer group, while opportunities to engage in sexual intercourse require a greater degree of

privacy and, perhaps, more time. Therefore, each set of opportunity determinants discussed below may be more or less relevant, depending upon the stage of heterosexual behavior under consideration.

Further, it will become obvious that the sources of, or constraints on, opportunity may interact in their effects on behavior. Constraints on time may be relevant only under conditions of certain restraints on location, and vice versa. Other such interactions will be apparent as we discuss these determinants.

Interpersonal Relationships

Obviously, if an adolescent is to engage in any of these types of heterosexual behavior, (s)he must come in contact with members of the opposite sex of a reasonably appropriate age. Thus, we would expect, for example, that adolescents in sex-segregated schools would have fewer opportunities to develop cross-sex friendships, to date, and eventually to engage in other forms of sexual behavior, than adolescents attending coeducational schools. Similar effects might be postulated for the sex distribution of neighborhood adolescent companions, activity or social club members, etc.

At the dating stage, the adolescent must be able to attract and maintain the interest of one or more partners in order to engage in this heterosexual activity. At later stages, those partners must also be ready and willing to engage in sexual play, intercourse, and (often) to cooperate in contraception. Thus, at one extreme, we may find that the homely or dull adolescent female never has any sexual decisions to make, because she is never asked (a custom which is still ingrained in our culture). Her attractive and/or popular counterparts, on the other hand, may routinely face such decisions. Finally, the adolescent's parents exert considerable control over which associates (s)he may interact with, especially prior to ages 16 or 17. Evidence from a national survey of American youth indicates that for girls between 12 and 17, one or both parents

makes this decision for 23% interviewed, while the decision is made jointly by the youth and the parent(s) in 32% of the cases examined. But 39% of the interviewees stated that the choice was theirs alone (Scanlon, 1975: 40).

Temporal Factors

The availability of members of the opposite sex may be sufficient for the development of cross-sex friendships, at least on a casual level. However, for closer friendships, dating and more intimate sexual behavior, time becomes a highly relevant factor. And it is time that parents, teachers, and other adults often use as a partial control over certain behaviors.

Adolescents usually spend about 6 hours per day in and around the school (even more if they are involved in school-related activities). They also have homework, household chores, and often part-time jobs that demand some allocation of time. In addition, they may be required to be at home, asleep or awake, during just those periods when sexual activity among adults is most frequent.

It is not likely that time constraints have much effect on the development of cross-sex friendships or dating. Both activities are generally approved by parents and society and are, in fact, institutionalized in the form of adult-sponsored boy-girl activities and the ideal of the popular, well-rounded individual. Further, both cross-sex friendships and dating can be engaged in while pursuing other ends, such as academic education, physical fitness, vocational skills, hobbies, etc. Finally, there are few restrictions on location for these activities, so that finding the time while in an appropriate place is not at issue.

When the adolescent moves to the stages of sexual play and coitus, time becomes more important. In the first place, "separate" time is required; that is, sexual play and coitus are not usually engaged in while pursuing some other activity. Therefore, the adolescent may have to give up time previously devoted to other activities in favor of sexual activity. Second, sexual play and coitus are not usually looked upon favorably by parents and society at large; furthermore, even when such behaviors are given approval, they are not considered appropriate in public. Therefore, the interaction of time and location becomes important. Adolescents must be available at those times when appropriate locations for these sexual activities can be accessed (e.g., at home when both parents are absent). National survey evidence suggests that parents exert greater control over the temporal dimension of heterosexual behavior than they do over who the adolescent's associates are. When asked who makes most of the decisions on how late the youth may stay out, 65% of the 12- to 17-year-old females interviewed indicated one or both parents. Only 30% of the respondents indicated a joint youth-parent decision, and only 3% said they were free to make this determination alone (Scanlon, 1975: 41).

It should be noted, however, that frequently restrictions are lessened with the increasing age of the adolescent (see Scanlon, 1975: 41). Since age is also associated with interest in sexual activity, it may be that adolescents are given greater temporal freedom just when they can best make use of it for sexual purposes. (This is not to suggest that such temporal restrictions should be maintained throughout adolescence, but to indicate the possibility that temporal restraints may under certain conditions have little effect on adolescent sexuality.)

Locational Factors

As indicated above, parents and other adults maintain most of the control over adolescent activity via restraints on time and/or

location of adolescent activities. Locational factors may affect opportunities for heterosexual activity through interpersonal relationships. Attendance at a sex-segregated or coed school, for example, could affect the development of cross-sex friendships and dating relationships. Similarly, residence in a rural area may reduce the opportunities to interact with adolescent males. Zelnik and Kantner (1972) report a lower incidence of coitus among adolescent females who live on farms than among urban adolescents; however, this could be due primarily to different attitudes in the two types of communities and families, rather than to differential opportunity to interact with young males.

As with temporal factors, locational factors are likely to be of greater importance at later stages of heterosexual interaction. As mentioned above, sexual play and coitus require a certain amount of privacy due to parental and societal norms.

Some locations may be restricted at all times (e.g., the local "overnight" motel), but most locational aspects of opportunity for sexual play and coitus occur in conjunction with temporal aspects. For example, the adolescent's own home provides opportunities when parents are absent. An open meadow may provide an appropriate location for coitus, but only after dark. One of the advantages (or disadvantages) of the adolescent's automobile (especially the station wagon or van) is that it can provide a private location at almost any time the adolescent is free.

Location in a broader sense may also affect opportunities for sexual play and coitus. As mentioned parenthetically above, urban adolescents have higher rates of coitus than rural adolescents. Even higher rates are found among adolescents living in the central cities of metropolitan areas (Arnold, 1972; Zelnik and Kantner, 1972a). It may be that the city offers more "relative privacy"--in the form of anonymity that can be found only a short

distance from one's family-school area. However, the fact that suburban adolescents have the lowest coital rates, lower than adolescents in nonmetropolitan areas, suggests that the causal factor in this instance is social class, rather than opportunity.

These broader locational factors probably do have a significant impact on opportunities for coitus with contraception. Although barriers to contraceptive access, even for adolescents, have been lowered in recent years through legislation and private efforts, access is still geographically uneven (Jaffe and Dryfoos, 1976). The urban adolescent can more easily (and anonymously) obtain contraceptive services than the adolescent growing up in a small town.

Norms and Beliefs of Significant Others

We have already indicated how parents and society control opportunities for heterosexual interaction through, primarily, temporal and locational factors. Obviously, parents and other significant adults may differ in their norms and beliefs regarding adolescent sexual behavior. Therefore, they may use locational and temporal controls to inhibit or facilitate heterosexual behavior according to what they feel is appropriate. This may be particularly important for coitus with contraception, since parents may, regardless of their attitudes toward coitus on the part of adolescents, provide their sexually active adolescent children with contraceptive information and supplies to prevent pregnancy.

The norms and beliefs of relevant peers may also affect opportunities for heterosexual interaction. At the earliest stages, the heterosexual interests of one's same-sex friends may provide or deny opportunities to develop cross-sex friendships. At more advanced stages peers may or may not provide appropriate locational opportunities (e.g., a van, an empty home).

The presence of peers in an otherwise appropriate location may or may not facilitate sexual play and/or coitus, depending on the norms of those peers. Finally, peers, like parents, can be sources of contraceptive information and, sometimes, supplies.

It should be noted that the opportunities provided or denied by the norms and beliefs of these significant others are conceptually different from the influence of those norms and beliefs themselves. An adolescent may, for example, refrain from coitus either because his/her parents would disapprove or because the parents' norms have been translated into opportunity barriers via curfews, chaperones, etc.

Norms and Beliefs of the Adolescent

Up to this point, the reader may have assumed that we consider opportunities for heterosexual activity to be outside the adolescent's control. Obviously, this is not wholly the case. The female adolescent, for example, may spend a good deal of time and money (e.g., cosmetics, "charm school") to manipulate her "attractiveness" and thus may increase opportunities for heterosexual relationships. In fact, she may even engage in certain forms of sexual behavior in order to enhance this aspect of opportunity. In this instance, the "dependent" behavior may lead to the "independent" opportunity.

The adolescent interested in heterosexual activity is more likely to seek out locational and temporal opportunities for such behavior, to the extent that this is possible. This fact does not deny the impacts of parental and societal restrictions, but may lessen them. Similarly, the adolescent is likely to seek out friends and companions who have similar norms and beliefs regarding sexual activity; thus the opportunities provided by peers are likely to be of the sort the adolescent would choose if they were under his/her control alone.

The adolescent's personal influence on opportunities for sexual play and coitus necessarily presupposes clearly formulated attitudes toward these activities. (Although adolescents with unclear attitudes may inadvertently, for example, select friends whose norms provide opportunities for coitus, such opportunities should be considered as "external" factors.) Therefore, we would expect the personal influence of the adolescent on opportunities to increase with age, as sexual norms and beliefs become clearer through experience, and as decisions are increasingly influenced by cognitive factors.

Our goal in the proposed research is to employ the previously discussed model to explore variations in the heterosexual behavior of adolescent girls. In doing so, we will be able to address each of the four questions raised with respect to Reiss's (1967) theory of premarital sexual permissiveness.

## B. SPECIFIC AIMS

The principal objectives of this research are as follows:

1. To compare patterns of premarital heterosexual behavior, including cross-sex friendships, dating, sexual play, coitus without contraception, and coitus with contraception, among and between populations of adolescents of both sexes.

2. To compare variations in the sequencing of these five stages of heterosexual behavior among the four population groups.

3. To determine the relative influence of both heterosexual attitudes and actual as well as perceived opportunities to engage in heterosexual behavior on each of the five stages of heterosexual behavior, on their sequencing, and among the four population groups.

4. To determine the relative influence of various sources and mechanisms of socialization on each of the five stages of heterosexual behavior, on their sequencing, and among the four population groups.

5. To evaluate the proposed model as a comprehensive explanation of patterns of adolescent premarital heterosexual behavior.

## C. METHODS OF PROCEDURE

### 1. RESEARCH DESIGN

The methodological approach of this research consists of three annual interviews with adolescents, their parents, and close friends. The sample will be stratified by age (12/13, 14/15, 16/17), sex status (lower, higher). A summary of the design is presented in Table 1. More detailed discussion of its major characteristics is provided below.

#### a. Sampling Units

Each sampling unit will consist of up to four or five individuals, and in all cases will include the adolescent, the same-sex parent, a same-sex friend, and a cross-sex friend. For one-half of the adolescents we will also interview the cross-sex parent. Determination of whether the cross-sex parent is to be included will not be random, since we expect some adolescents to be living with divorced, separated, or widowed parents, and these sampling units must necessarily fall into the mother- or father-excluded categories. Those sampling units with both parents present will be randomly sampled in order to determine whether or not the cross-sex parent will be interviewed.

It is anticipated that the greatest difficulty will be encountered in obtaining cooperation from the adolescent's friends. In order to maximize the likelihood that these

Table 1.
Sample Design for Initial and Subsequent Interviews

| Age of Adolescent | Data Sources | Interview No. 1 | | | | Interview No. 2[a] | | | | Interview No. 3[a] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sex and Socioeconomic Status[b] | | | | | | | | | | | |
| | | Male | | Female | | Male | | Female | | Male | | Female | |
| | | H | L | H | L | H | L | H | L | H | L | H | L |
| 12/13 | Adolescents | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| | Same-Sex Parents | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| | Cross-Sex Parents | 20 | 20 | 20 | 20 | | | | | 20 | 20 | 20 | 20 |
| | Same-Sex Friends | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| | Cross-Sex Friends | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| 13/14 | Adolescents | | | | | 40 | 40 | 40 | 40 | | | | |
| | Same-Sex Parents | | | | | 40 | 40 | 40 | 40 | | | | |
| | Cross-Sex Parents | | | | | 20 | 20 | 20 | 20 | | | | |
| | Same-Sex Friends | | | | | 40 | 40 | 40 | 40 | | | | |
| | Cross-Sex Friends | | | | | 40 | 40 | 40 | 40 | | | | |
| 14/15 | Adolescents | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| | Same-Sex Parents | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| | Cross-Sex Parents | 20 | 20 | 20 | 20 | | | | | 20 | 20 | 20 | 20 |
| | Same-Sex Friends | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| | Cross-Sex Friends | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| 15/16 | Adolescents | | | | | 40 | 40 | 40 | 40 | | | | |
| | Same-Sex Parents | | | | | 40 | 40 | 40 | 40 | | | | |
| | Cross-Sex Parents | | | | | 20 | 20 | 20 | 20 | | | | |
| | Same-Sex Friends | | | | | 40 | 40 | 40 | 40 | | | | |
| | Cross-Sex Friends | | | | | 40 | 40 | 40 | 40 | | | | |
| 16/17 | Adolescents | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| | Same-Sex Parents | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| | Cross-Sex Parents | 20 | 20 | 20 | 20 | | | | | 20 | 20 | 20 | 20 |
| | Same-Sex Friends | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |
| | Cross-Sex Friends | 40 | 40 | 40 | 40 | | | | | 40 | 40 | 40 | 40 |

NOTE: Underlining indicates respondents to be followed longitudinally.

a. Sample sizes shown for the second and third interviews in the longitudinal design indicate those that would be obtained if there were no attrition. However, we must assume that some respondents will move out of the Seattle area during the course of the study while others will choose not to participate in subsequent years. Nevertheless, we expect that attrition rates will not exceed 10 percent per year, thus leaving us with a completed sample of sufficient size for statistical analysis at the termination of the study.

b. H=higher status, L=lower status. Specific cutting points will be determined according to parents' occupational

interviews can be conducted, each adolescent will be asked to provide names of his/her three closest friends of each sex. Friends of each sex will be approached in the order of preference indicated by the adolescent until one agrees to participate in the study or the list is exhausted. Although every effort will be made to secure the friends' interviews, we can realistically expect that for some sampling units friends of one or both sexes may not participate.

There are some research problems that arise from the use of this sampling strategy. In the first place, the cost of each sampling unit is slightly increased due to the additional time required to schedule and obtain the additional interviews. A more serious problem may be the potential response bias resulting from the procedure. Of course, any investigation of this type would require the mutual consent of adolescents and parents, whether or not the parent was to be interviewed. Thus, any such study would have a response bias toward more "liberal" families. (However, we will attempt to collect some data on the characteristics and attitudes of families who choose not to co-operate in the study. See section on Sample Selection, below). The potential for an additional response bias is created by the fact that we will request the consent of two additional families--those of same-sex and cross-sex friends of the adolescents in the "primary" family. We consider it likely that at least one of the adolescent's closest same-sex and cross-sex friends will come from similarly "liberal" families that will consent to the interview. However, we must expect that some sampling units will have missing data for the friends' responses.

The advantages of this stragegy are considerable (c.f. Kandel and Lesser, 1972). In the first place, it allows us to include actual norms and beliefs of parents and peers in our model, rather than relying solely on adolescent perceptions of those norms and beliefs. Second, it allows us to examine discrepancies between the actual norms and beliefs and those perceived by the adolescent. Such discrepancies may be of major

importance for the "success" or "failure" of a socialization agent (parent or peer). Further, we can measure that success or failure via discrepancies between the actual norms and beliefs of significant others and the adolescent's internalized norms and beliefs.

The peer interviews will also provide a behavioral measure of the sexual environment to which the adolescent is exposed. It may be that the actual heterosexual activities of peers have a greater impact on the adolescent's perceptions of peer norms and beliefs than do verbalized peer norms and beliefs.

In summary, we have recognized potential problems that may arise from our definition of a sample unit, and have developed procedures for estimating their seriousness. We have also determined that the contributions of this strategy to the purposes of this research and to the needs of this research area justify its use.

b. Sample Parameters: Age, Sex, and Socioeconomic Status (SES)

The initial sample will be stratified by age of adolescent (12/13, 14/15, 16/17), sex and SES (lower, higher), with a quota of 40 adolescents selected from each of the subpopulations. Socioeconomic status will be determined on the basis of the occupation of the father or the mother (whichever ranks highest). Professional, technical, managerial, administrative, sales, and clerical workers will be in the higher group; skilled craft workers, operatives, laborers, and service workers will be classified as lower SES. The rationale for this stratification is that these parameters may not only be related to the variables in our model, but that they may have an effect on the relationships among variables in the model. Thus, by stratifying, we will be able to look for interactions with age, sex, and SES and, where these are found, we will be able to perform separate analyses (limited by the size of the group) on those subgroups that differ from one another.

Age, sex, and SES have been selected as stratifying variables because of their potential role in heterosexual behavior. It has already been established that there are age, and SES differentials in sexual attitudes and behavior (see review of previous research, above). We also expect that there are differentials in the process of attitude development and in the relations among attitudes, opportunities, and behavior. For example, younger adolescents may have less clearly formulated attitudes toward sexual behavior and be influenced to a greater extent by opportunities than are older adolescents. There may be socio-economic differentials in the relationship between parental and adolescent norms, as well as in the accuracy of perceived parental norms. Sex differences in the relationship between parental and adolescent norms may arise because of differing expectations and opportunities to which boys and girls are exposed. Whatever the specific differences may be, these variables have a high probability of interacting with the relationships of interest. The stratified design provides opportunities to perform some limited but separate subsample analyses, if necessary.

c. Cross-sectional and Longitudinal Aspects

The research design calls for three annual interviews over the course of the four-year project. The first interview will be based on the 12 subsamples just described. The second interview will be based on the original respondents in the 12/13-year-old and 14/15-year-old groups; they will be 13/14 and 15/16 years old, respectively, at the time of the second interview. The third interview will include the original respondents in the 12/13-year-old and 14/15-year-old groups (at this point they will be 14/15 and 16/17 years old), plus a new sample of 12/13-year-old adolescents, distributed appropriately by sex and SES.

Each interview constitutes a complete cross-sectional design. The first and third interviews will have the same age, sex, and SES components and may be compared to estimate the effects of sample attrition, reactivity, and period (see below).

The primary function of the longitudinal design is to determine more accurately the effects of the aging process on heterosexual interaction and its antecedents. The cross-sectional age-group comparisons do provide some evidence for change that may be a function of age. However, in the cross-sectional design, these differences could also be attributed to the effects of the particular historical period at which an adolescent attained a particular age (period-age interaction). For example, recent evidence of a downward shift in age at first intercourse (Zelnik and Kantner, 1972a) suggests that an adolescent attaining age 13 in 1975 and an adolescent attaining that age in 1977 may be subject to different norms at age 13. Thus, if the two groups are compared in 1977, the difference in their sexual activity will probably be <u>less</u> than the changes experienced by the 15-year-olds over the ages 13 to 15. By following 12/13-year-olds and 14/15-year-olds over the two-year period, we control for the interactions of age and period within each of the two groups. Changes over time are then a function of the effects of age and period. Since the period effects are likely to be small, we can examine changes primarily as a function of the aging process.

Comparisons of the results from the first and third interviews can provide one measure of period effects; comparisons would be made between groups at the same age at the two different periods in time. However, comparisons of 14/15-year-olds and 16/17-year-olds at these two points confound the effects of period, sample attrition, and reactivity to the previous interviews. Comparison of the two 12/13-year-old groups provides a "pure" measure of period effects.

Reactivity might result from stimulation of parent-adolescent discussion after each interview. This could result in an increase in accuracy of norm and belief perception that would not otherwise occur over the one-year period between interviews. The questionnaire might provide information or raise concerns that had not previously been considered by adolescents and parents and that could affect their responses to later interviews. We have two methods to estimate the degree of reactivity. First, we can compare responses of 16/17-year-olds in the first and third interviews; those who are 16/17 in the first interview will not have been previously interviewed. Those who are 16/17 at the third interview will have been interviewed twice. (They will also have experienced some attrition (see below), which could confound the comparison.) Another method of examining reactivity involves interviews of the adolescent's friend(s). We expect that, for some adolescents, different friends will be interviewed at different time periods. This could result from changes in the adolescent's friendship patterns or from refusals of further interviews by the friends initially interviewed. In any case, we can compare the responses of "new" friends to friends who are reinterviewed, in order to estimate the reactive effects of both the first and the second interviews.

We will also want to estimate the effects of attrition on the results of the second and third interviews (and, subsequently, on analyses of change). Over the course of the two-year period we can expect a small reduction in our sample size, due either to (a) migration or (b) refusal to participate in further interviews. (We hope to minimize the effects of migration by including in follow-up interviews respondent families that relocate within the four counties currounding the Seattle area.) Estimates of attrition rates are indicated in Table 1, note a. We can estimate attrition effects by comparing responses from each of the 14/15- and 16/17-year-old age groups in the first interview with the corresponding age groups in the third interview with respect to

beliefs, norms, behaviors, etc. We can also compare responses to the initial questionnaire, including relatively constant demographic variables (e.g., family size, age gap between parent and adolescent, father's education), for "drop-outs," migrants, and those who are reinterviewed. These comparisons will allow us to examine both the extent to which attrition is a function of variables important to our model of sexual activity and the extent to which it may distort the relationships involved.

## 2. ADVISORY GROUPS: ADULTS AND ADOLESCENTS

Because adolescent sexual behavior is a sensitive issue for most parents and other concerned community members, our first task will be to form an adult advisory group for the project. The committee will include one man and one woman. Selection criteria will include involvement with the community from which samples are to be drawn and experience and/or training in the area of adolescent sexuality. Nominations of individuals who meet these criteria will be solicited from social and activity groups or organizations in the community.

The adult advisory committee will meet with the principal investigator and other relevant project personnel at selected intervals during the course of the project (see Figure 3, Schedule of Project Activities). The primary functions of the committee will be:

(1) To review and suggest revisions of the major written materials (e.g., letters to parents, questionnaires, summary reports) to be used in the project; in particular, to indicate where nuances of expression may result in different meanings to members of the different racial groups.

(2) To assist the principal investigator in dealing with any negative community reactions to the project that may arise, e.g., from respondent families or community interest groups.

It is hoped that the use of such a committee will result in greater community cooperation (from both individuals and groups) and will prevent sudden "eruptions" of antagonism that might arise due to the sensitive nature of adolescent sexuality.

In addition to the adult group, we will form a group of adolescents to provide input at the questionnaire-development stage and to suggest methods that will not "turn off" adolescents. One male and one female adolescent will serve in this capacity. They will be selected on the basis of recommendations from school personnel and/or community leaders, and may participate only with permission of their parents. We will require the skills of organization, analysis, and articulation for this role in the project. The advisory groups will meet at least twice during the questionnaire development stage. The two sets of meetings will provide judgments reflecting experience common to adolescents and parents.

3. SAMPLE SELECTION

The sampling plan to be followed is basically a cluster sampling involving census tracts and blocks. Census tracts in the Seattle SMSA will be initially selected on the basis of their proximity to middle and secondary schools and/or on the basis of an above-median average of adolescents per household, in order to increase the expected number of eligible families in each tract, and thus to reduce costs involved in locating eligible families. Census tracts so located will be divided into "working class" and "middle class" groups on the basis of such

indicators as family income, percentage of owned homes, etc., and equal numbers of potential respondents will be identified from each censis-tract grouping.

Within selected census tracts, blocks will be randomly sampled, and within each block, every 4th house will be selected for telephone screening. Telephone numbers for selected households will be obtained from a reverse directory. If no number is listed, the number for one of the immediately adjacent households will be selected. The clustering of selected households within blocks will reduce the time and cost involved in obtaining the telephone numbers from the reverse directory.

The number of blocks to be randomly selected within each census tract will be initially determined on the basis of:

(1) the total number of households in each SES grouping of census tracts, and the average number of households per block;

(2) an estimate of one eligible family for every 8 households selected;

(3) an estimate of 50% refusals among eligible families; and

(4) the goal of 480 primary respondents, 40 in each age/sex/SES category.

Additional blocks can be randomly selected if the initial procedure does not provide us with the desired number of respondent families.

Identification of eligible families will be made by brief telephone interviews, in which an adult respondent will be asked a few innocuous questions regarding attitudes toward teenage dating and then will be asked to provide demographic information, including the presence or absence of a son or daughter age 12-17. The attitude items have two purposes:

(1) they provide a legitimate reason for asking the demographic questions; and

(2) they provide comparative information on attitudes of those eligible families who do and do not agree to participate in the larger study.

Telephone respondents who are not eligible for the study will be thanked for their assistance and the interview will be terminated. Those who are eligible will be told that they will soon receive a letter inviting them to participate in an in-depth study of adolescent dating and sexual attitudes and behavior. NO attempt will be made to secure their cooperation at that time.

Eligible families will be sent a letter explaining the purpose and nature of the study. Within a week of their receipt of the letter, an interviewer will call the family to answer questions, provide additional information, and to secure their participation in the study.

4. INTERVIEWER SELECTION AND TRAINING

Interviewer training sessions will be conducted by Battelle staff. The project manager will be responsible for training sessions, which will include:

(1) Familiarization with the purpose of the study and with questionnaire content.

(2) Instructions on contacting adolescent/parent families and the secondary "friend" families to set up interview appointments.

(3) Instructions for administering the questionnaires.

(4) Discussion of interviewer bias and instructions for answering respondent questions.

(5) Discussion of confidentiality issues and instructions for obtaining informed consent.

(6) Some participation in the pretest stage of questionnaire development.

## 5. DEVELOPMENT OF THE QUESTIONNAIRE

The questionnaire will be developed incorporating (a) measures used by other investigators; (b) parameters specified in the theoretical literature; and (c) age/sex/SES-specific concerns determined in conjunction with the advisory groups.

Approximately two months will be devoted to the construction of a closed-format questionnaire consisting of items such as those described below in the section on Operational Measures. Among those items developed by previous researchers that are anticipated to be appropriate for this study are those employed by Bowerman and Elder, 1964; Zelnik and Kantner, 1972; Sorenson, 1973; Reiss, 1967; and perhaps Vener and Stewart, 1974. During this developmental period several meetings with advisory group members and a social scientist consultant with extensive experience in surveys of adolescent sexual and contraceptive behavior are planned.

Once the closed-format questions have been determined, open-ended questions will be added to elicit additional parameters during a pretest. An example of this approach will be to follow several closed-format questions dealing with perceived outcomes of coitus with an open-ended question such as: "Are there any other outcomes (results, consequences) that you associate with sexual intercourse ('going all the way'?)"

The pretest will be conducted using a total of 158 interviews. The pretest respondents will consist of three adolescents from each age/sex/SES group and their same-sex parents; cross-sex friends; same-sex friends; and cross-sex parents of two of each of the primary adolescents who will be selected in the same manner as study respondents will be. The pretest will permit ultimate development of a comprehensive but quantifiable, self-administered, closed-format instrument of a length, content, and language acceptable to respondents. It will also provide information on optimal approaches to the scheduling and conduct of interviews for the study.

The advantages of a self-administered, closed-format questionnaire are the reduced time required to obtain the desired information from the respondent, the reduction of potential interviewer bias, the increased privacy of the respondents' answers, the capability for one interviewer to administer more than one questionnaire simultaneously (e.g., adolescent and parents), and the elimination of the need for extensive coding of data prior to processing.

## 6. DATA COLLECTION PROCEDURES

All interviews, including the pretest interviews, will be conducted in the home of the respondent. Both the adolescent and his/her parent(s) will independently complete self-administered questionnaires in the presence of an interviewer.

No exchange of information will take place between the respondents until the interviews are completed. All restrictions on the confidentiality of individual responses shall apply; in particular, no respondents--neither parents nor children--will be given knowledge of the other's responses.

Interviews of same-sex and cross-sex friends will be conducted in a similar manner as soon as possible after the interview of the adolescent and his/her parents. Friends' families will be contacted sequentially until consent is obtained or until the lists are exhausted. Every attempt will be made to complete this process in the shortest possible time in order to minimize contamination effects within a set of interviews.

## 7. OPERATIONAL MEASURES

Since development of a closed-format questionnaire is part of the proposed research, we cannot, at the present time, precisely specify its contents. We can, however, indicate in more detail the types of information that will be elicited to measure each of the variables of interest.

### a. Norms of Significant Others

The interviews of mothers, fathers, and the adolescent's friend(s) will provide independent measures of the norms of these significant others regarding various types of hetero-sexual behavior. Parental norms will be based on parents' feelings about each type of behavior for (a) their own adolescent daugher (son) and (b) adolescent girls (boys) in general. The latter type of response is important because it represents the form in which these feelings are often transmitted to the adolescent (e.g., disapproval of the girl down the block who "got into trouble"). The following question is illustrative of those that will be asked:

How would you feel if your daughter (son) occasionally engaged in each of the following activities with teenage boys (girls)?

-- Attending chaperoned group parties
Strongly Disapprove____ Mildly Disapprove____
Neither Approve nor Disapprove____ Mildly Approve____
Strongly Approve____

-- Dating only one boy (girl) for six months or more
Strongly Disapprove____ Mildly Disapprove____
Neither Approve nor Disapprove____ Mildly Approve____
Strongly Approve____

-- Engaging in sexual intercourse
Strongly Disapprove____ Mildly Disapprove____
Neither Approve nor Disapprove____ Mildly Approve____
Strongly Approve____

Similar questions will be asked regarding each of the dependent behaviors, i.e., heterosexual activities (see below). Duplicate questions will also be asked in reference to adolescent girls (boys) in general. Questions to elicit norms of the adolescent's friends will be phrased in a similar way; however, the two referents will be "myself" and "teenage girls (boys) in general."

b. Adolescent Perceptions of Norms of Significant Others

The response format of these measures will be similar to that of the examples listed above. For example:

-- Attending chaperoned group parties
Strongly Disapprove____ Mildly Disapprove____
Neither Approve nor Disapprove____ Mildly Approve____
Strongly Approve____

Similar questions will be asked regarding how the adolescent's friends would feel if (s)he engaged in each activity. We will also obtain data on the adolescent's perceptions of how most of (his)her (a) teachers, (b) members of the church (if applicable), and (c) members of the community would react to the same behaviors for adolescent girls (boys) in general.

c. Norms Internalized by Adolescents

These items will be identical to those asked of the adolescent's friend(s). For example:

How do you feel about engaging in each of the following activities with teenage boys (girls)?

-- Dating only one boy (girl) for six months or more
Strongly Disapprove____ Mildly Disapprove____
Neither Approve nor Disapprove____ Mildly Approve____
Strongly Approve____

Identical questions will be asked about adolescent girls (boys) in general. This second set of questions may reflect more accurately the adolescent's "true" internalized norms; responses to the first set are more likely to be biased toward "social desirability" (i.e., what the adolescent thinks others expect).

d. Beliefs of Significant Others

Again, the interviews of mothers, fathers, and the adolescents' friends will provide independent measures of the nonnormative beliefs of these significant others. Non-normative beliefs are probabilistic judgments regarding the outcomes of a particular heterosexual activity (Fishbeing and Azjen, 1975). Some of these beliefs are of a "factual" nature;

that is, there is some "true" standard with which the belief can be compared. For example, the probability that coitus without contraception will result in pregnancy, or the probability that using oral contraceptives will result in weight gain, are beliefs that can be compared with risks that have been approximately determined for groups of adolescent females in general. Other nonnormative beliefs are more "subjective" in the sense that there are no data on group "risks" or that they are idiosyncratic to individual personalities. Examples are the beliefs that engaging in sexual play will result in greater popularity or that coitus will lead to marriage. Both types of beliefs will be measured for parents and adolescent friends; in each case respondents will reply with reference to adolescent behavior. Illustrative items are listed below:

Having sexual intercourse less than once a month without contraception will result in pregnancy.

Very Unlikely____ Moderately Unlikely____
Neither Likely nor Unlikely____ Moderately Likely____
Very Likely____

"Light petting" (sexual contact above the waist only) will cause me (adolescent girls or boys) to lose respect for myself (themselves).

Very Unlikely____ Moderately Unlikely____
Neither Likely nor Unlikely____ Moderately Likely____
Very Likely____

The scales to be used will generally be of the type specified above, but alternative scales will also be considered, such as (1) 7- and 9-point likelihood scales; (2) probability choices scaled in "chances" of 10%, 20%, or 25% (e.g., 0%, 25%, 50%, 75%, 100%); or (3) 5-, 7-, or 9-point agree/disagree scales for statements of a

specified probabilistic nature (e.g., "It is very likely that having a lot of dates will make me feel good about myself.").

e. Adolescent Perceptions of Beliefs of Significant Others

The questions to be asked regarding belief perception will correspond to each of the beliefs measured for the parent and peer; for example:

How would your parent(s) respond to the following statement:

-- Having sexual intercourse less than once a month without contraception will result in pregnancy.

Very Unlikely____ Moderately Unlikely____
Neither Likely nor Unlikely____ Moderately Likely____
Very Likely____

Similar questions would be referenced to the adolescent's close friends.

f. Beliefs Internalized by Adolescents

The same set of belief questions asked of significant others will be asked of the adolescent in each sampling unit.

g. Adolescent's Attitude Toward Heterosexual Behavior

Since the attitudes of interest are attitudes toward behaviors (as opposed to attitudes toward persons or objects), all attitude measures will be oriented toward specific heterosexual behaviors (e.g., steady dating, coitus). For each behavior, we will include items such as the following:

For me, dating only one boy (girl) for six months or more would be

Bad___ ***___ ***___ ***___ ***___ ***___ Good___

I intend to have sexual intercourse with my boyfriend (girlfriend) during the next two months.

Very Unlikely___ ***___ ***___ ***___ Very Likely___

These questions represent summary measures of the adolescent's overall predispostion toward heterosexual behavior.

Multiple-item measures of attitudes can also be constructed utilizing the adolescent's norms and beliefs. In one sense, such measures constitute a specification of the relationships among norms, beliefs and attitudes. In another sense, they posit a direct relationship between norms, beliefs, and attitudes, on the one hand, and behavior on the other.

Such multiple-item measures (or relationship specifications) may be developed via factor analysis of norms and beliefs, or via construction of an expectancy-value (or subjective expected utility) component (Edwards, 1961). In order to perform the latter computations, we may collectct information on the positive or negative value of each of the belief outcomes for each behavior.

h. Parent-Adolescent Interaction

The following types of information will be collected from both parents and adolescents:

(1) Number of hours per week spent together (including time at home even when not directly interacting but not including time asleep).

(2) Number of times per week daughter (son) discusses her (his) personal feelings and activities with parent.

(3) Number of times per week parent and daughter (son) discuss her (his) feelings and activities involving adolescent boys (girls).

(4) Age at which parent explained sexual intercourse to adolescent (if ever).

(5) Age at which parent explicitly discussed contraception with adolescent (if ever).

In addition, the following types of information will be solicited from the adolescents:

How much influence do your parents' opinions about your interactions with boys (girls) have on your behavior?

Very Little Influence___ ***___ ***___ ***___ A Lot of Influence

How much do you depend on your parents for information about sexual and contraceptive matters?

Very Little___ ***___ ***___ ***___ A Lot___

These items will be combined in a weighted sum on the basis of within-set factor analysis, or on the basis of their relationships with other variables (two of Sullivan's [1974] criteria for selection of Multiple indicators in order to form a single measure. The sex-specific items will also be analyzed separately to form a single measure of parent-peer interaction regarding heterosexual activities.

i. Peer-Adolescent Interaction

The following types of information will be collected from the adolescents:

(1) Number of hours per week spent with close friends:

. At adolescent's home.
. At friends' homes.
. Elsewhere.

(2) Number of times per week adolescent discusses with close friends:

. Personal feelings and activities.
. Relationships with boyd (girls).

(3) Whether or not adolescent discusses with close friends:

. Sexual intercourse.
. Contraception

(4) Whether or not adolescent's close friends know more, less, or about the same as the adolescent regarding:

. Interaction with boys (girls).
. Sexual intercourse.
. Contraception.

In addition, we will ask questions regarding peer influence analogous to those asked about parents. These items will be analyzed in a manner similar to that of parent interaction items in order to develop a single measure of general interaction and of interaction regarding heterosexual activity.

j. Constraints on Opportunities to Engage in Heterosexual Interaction

We will obtain the following types of information from both the adolescent and parent(s):

(1) Weekday and weekend curfew details.

(2) Number of hours per week the adolescent can use the family (or her/his) car.

(3) Number of hours per week the adolescent is at home alone.

(4) Time spent at school (including extracurricular activities).

(5) Time spent on jobs outside the home.

(6) Whether or not the parent(s) would(do) provide contraceptives.

Some of these items will also be asked of the adolescent's friends, insofar as they represent opportunities that can be provided by the friends (e.g., a friend's empty house). Again, these items will have to be used to develop a single measure of constraints on opportunity.

k. Adolescent Perceptions of Opportunities to Engage in Heterosexual Behavior

Information will be collected from the adolescents concerning their perceptions of opportunities to engage in heterosexual behavior. Questions will be related to combinations of time, place, and activities. They are intended to represent the perceptual outcome of the actual constraints discussed above. For example:

(1) How many times per week do you spend alone with your boy (girl)-friend(s)?

(2) Where do you spend most of your time with your boy (girl) friend(s)?

(3) How often do you and your boy (girl) friend(s) have complete privacy?

(4) If you wanted to obtain contraceptives, where would you get them?

(5) Could you get contraceptives without anyone you know finding out?

1. Heterosexual Behavior

For each of several behaviors, we will obtain data from the adolescent and her/his friend(s) on frequency, regularity, length of involvement, and type of involvement (e.g., number of partners). Each of these measures constitutes a different dependent variable that may be differentially related to the independent variables. In addition, these measures can be combined (e.g., frequency x length of involvement) to form more comprehensive measures of the activity. Examples of specific activities that may be included are:

(1) Studying with a boy (girl) in the evening.

(2) Going to chaperoned group boy-girl parties.

(3) Double-dating.

(4) Kissing.

(5) Dating one or more boys (girls) on a casual basis.

(6) Dating only one boy (girl) for six months or longer.

(7) "Light petting" (sexual contact only above the waist).

(8) "Heavy petting" (sexual contact below the waist excluding coitus).

(9) Coitus without contraception.

(10) Coitus with contraception.

Some of these activities (and other activities that may be measured) may cluster into sets such as those described by our initially identified stages of heterosexual activity. Such sets would be characterized by unidimensional scalability (Guttman, 1944) from one set to another, but not within sets, when dichotomous (ever/never) measures are applied to each activity. We will also collect data on the age at which each type of activity was initiated, and whether initiation is ever followed by "regression" to an earlier stage.

m. Background Variables

Several types of background information will be collected from each respondent and used to specify and elaborate relationships among the variables of primary interest. Examples include:

(1) Biosocial status: e.g., age and sex.

(2) Socioeconomic status: e.g., subjective social class, occupation, income.

(3) Information status: e.g., education, school performance, exposure to media.

(4) Social involvement status: e.g., organizational participation, religious commitment.

The nature and types of background data collection will, of course, vary among adolescents, parents, and friends.

## 8. DATA REDUCTION PROCEDURES

As indicated in the previous section, we intend to develop single measures of some variables via factor analysis, scalogram analysis, expectancy-value combinations, and other such scaling procedures that may appear to be useful as we examine the distributions and relationships among the many individual items. Most of these reductions will be behavior-specific; that is, they will involve items related to a single dependent heterosexual activity.

In addition, we indicated that some of these individual activities may cluster into "stages" of heterosexual behavior, similar to those that we initially identified (see Figure 1). If we find that the independent variables corresponding to those activities tend to cluster into the same sets, we may be able to develop more general measures and to evaluate the hypothetical model for each "stage" (e.g., sexual play). If we are also able to develop an overall indicator of sexual activity along with measures of independent variables at a corresponding level of generality (e.g., some combination of attitudes toward each of the "stages" of activity), we will evaluate the model at the "total" level as well. In all of our analyses of the relations among the independent variables, and particularly in our analyses of attitude-behavior relationships, we will be following the guidelines for correspondence in levels of measurement provided by Fishbein and Ajzen (1975).

There are two sets of variables that can be constructed from the variables we will measure, but that are not explicitly included in our model. The first set consists of "discrepancy" scores; examples are differences between the parental norms and the

adolescent's perception of those norms and differences between the parent's and adolescent's perceptions of their mutual interaction. Such discrepancies may be examined in relation to background variables such as race and age of parents, and may be considered as descriptive of the "success" or "failure" of each of the major socialization agents.

The second set of new variables results from the longitudinal aspect of the research. The cumulation of information over the three-year period will require measures of change in independent variables measuring norms, beliefs, attitudes, opportunities, etc., in order to discover the changes in independent variables that are primarily responsible for the adolescent's progress from one stage of heterosexual activity to another over time.

## 9. DATA MANAGEMENT

Although the number of sampling units is not particularly large, the amount of data collected from each unit is extensive. Since such large quantities of data are difficult and costly, if not impossible, to handle within packaged statistical programs, we will utilize computer programming staff to write (or adapt) more efficient programs for cleaning, reducing, and efficiently storing these data, to be accessed in smaller subsets for packaged programs.

## 10. STATISTICAL ANALYSIS

Our first analytic procedures will consist of comparisons--by age, sex, and socioeconomic status, and by appropriate combinations of these variables--of differences in beliefs, norms, attitudes, opportunities, and behaviors. Linear multiple regression analysis using dummy variables for each subsample of the design (i.e., analysis of variance) will be used to determine the

extent to which these 24 "main effects" can be reduced to age, sex, and socioeconomic differences. We will also use multiple analysis of variance (MANOVA) to analyze age/sex/SES effects on clusters of variables (e.g., beliefs regarding outcomes of coitus or sexual contact activities excluding intercourse). These analyses may indicate differences that might otherwise remain hidden when multiple measures are combined into scales.

The next set of analyses will be designed to examine potential impacts of our stratifying variables on the relationships to be examined. In addition to differences in norms, beliefs, behavior, etc., according to age, sex, and SES, we may discover that estimates of the parameters in our model differ by these variables. For example, there may be a strong positive relationship between parental norms and the adolescent's internalized norms among the younger age groups; the relationship in the oldest age group may be negative. Some variables may not enter into the model at all for some subgroups.

Analysis of covariance (using linear regression with dummy variables and multiplicative terms) will be applied to the major bivariate relationships in the model. We expect to find enough similarities so that we can combine some of the 12 subgroups for the analyses described below.

We will also consider several categorical variables other than those used for stratifying the sample in order to look for similar interactions. Analysis of covariance procedures will again be employed for this purpose. For example, we do not expect opportunity to have an effect on the behavior of individuals who have strong negative attitudes toward specific forms of sexual behavior. We will also consider the possibility that adolescents with strong positive attitudes will be little affected by "external" opportunities because they make opportunities for themselves. Some problems of this sort may be handled via the

inclusion of multiplicative terms in standard linear regression equations, but others may be handled by categorizing the interacting variable so that analysis of covariance can be applied to other bivariate relationships.

As we combine subgroups for higher levels of analysis, we will be particularly watchful for potential nonlinear relationships. Where such relationships occur, we will look for variable transformations that will result in a linear relationship.

Once we have stablished appropriate subgroup combinations and "linearized" the variable relationships for a particular analysis, we will generally use linear multiple regression analysis to analyze the relationships among the variables in our model(s). Since we have posited recursive systems, path analytic techniques will be applied to estimate the model(s) where there are not interaction terms. Where multiple indicators of a variable are available, we can use multiple oartial correlations to examine the relative importance (in terms of variance explained) of the relationships in the model. If we use summary scales as single measures of a variable, we can also estimate unstandardized coefficients for the model; however it is difficult to interpret such coefficients (e.g., what does a change in one unit of an opportunity scale mean in terms of the indicators that are a part of it?).

As noted in the section on data reduction, we may be able to consider the interrelationships in our model at varying levels of generality (e.g., sexual contact above the waist, sexual play, sexual interaction of all types). If we have been able to develop measures of the variables in the model at other than the most behavior-specific levels, and if we can also assume linearity for these relationships, we will apply multiple regression analysis, including path analysis, to these more general variables, in the same manner as we apply them to the behavior-specific measures.

It is implicit in the above discussion that we may perform some of these multivariate analyses only within sample subgroups, e.g., working-class female, 14/15-year-olds, etc. We should point out that the smaller the subgroup that is to be separately analyzed, the more limited the number of variables that can reasonably be included in the analysis. Thus, our data reduction procedures are extremely important in order to enable us to consider the most relevant variables in the subgroup analyses. We expect each of the primary subgroup analyses to be based (one at a time) on the three stratifying variables (N=160, 240, or 240). We anticipate a number of limited analyses that may require separation of each age/sex category (N=80), age/class category (N=80) or sex/class category (N-120).

The longitudinal analyses will include some strictly comparative analyses of independent and dependent variables using analysis of variance (via regression with dummy variables). Comparisons among specific age groups will be made to isolate the effects that period, age/period interaction, reactivity, and attrition have on responses.

In analyses of change within individuals across time (i.e., those changes that may be a function of age), the dependent variable will always be the measure at time t of one of the endogenous variables in the model, rather than a "gain" or change score between measures at t and t-1. In most cases the dependent variable at time t will be related to independent variables at time t, controlling for the level of the dependent variable at t-1. In some cases, our formulation may include change in the independent variable. Most of these analyses will use linear multiple regression analysis. However, we are sensitive to the problems of correlated disturbance terms and regression to the mean that are associated with such data. We will, where possible, also apply appropriate two-stage, least-square solutions to deal with such problems.

A detailed schedule of project activities is shown in Figure 3.

Figure 3.

ADOLESCENT SOCIALIZATION STUDY: SCHEDULE OF ACTIVITIES
(Period of Performance: 1/1/78 - 6/30/79)

| TASKS | DATES | RESPONSIBILITY | LIAISON | PARTICIPANTS | WEEKS | ✓ COMPLETED |
|---|---|---|---|---|---|---|
| Form Advisory Group | 1/1 - 1/14 | JSG | JSG | MM EJT | 1-2 | |
| Develop Telephone Screen Instrument | 1/1 - 2/11 | EJT | | | 1-6 | |
| Develop Data Management System | 1/1 - 2/18 | JSG | | EJT AD | 1-7 | |
| Develop Questionnaire | 1/1 - 3/4 | MM | | EJT JSG AD,RP | 1-9 | |
| Develop Consent Forms and Letters | 1/1 - 3/4 | JSG | | AD | 1-9 | |
| Meet with Methodology Consultant | 1/7; 2/16 | MM | MM | JSG EJT RP | 6 | |
| Meet with Advisory Group | 2/16; 2/23 | JSG | JSG | MM,RP EJT | 6,8 | |
| Screen Pretest Sample | 2/12 - 3/11 | AA | EJT | | 7-10 | |
| File Cards on Pretest Sample | 2/12 - 3/11 | AD | JSG | EJT | 7-10 | |
| Letters to Pretest Sample | 2/26 - 3/18 | JSG | | AD | 9-11 | |
| Prepare Respondent Records | 2/26 - 3/18 | JSG | | AD | 9-11 | |
| Train Interviewers | 2/19 - 3/4 | EJT | EJT | JSG MM | 8-9 | |
| Type Pretest Questionnaire & Consent Forms | 2/19 - 3/4 | AD | JSG | | 8-9 | |
| Schedule & Conduct Pretest Interviews | 3/5 - 4/8 | AA | JSG | | 10-14 | |
| Revise Letter to Study Respondents | 3/19 - 4/15 | JSG | | AD | 12-15 | |
| Screen Study Sample | 2/12 - 5/20 | AA | EJT | | 7-20 | |

Figure 3 (Cont.)

ADOLESCENT SOCIALIZATION STUDY: SCHEDULE OF ACTIVITIES

| TASKS | DATES | RESPONSIBILITIES | LIAISON | PARTICIPANTS | WEEKS | ✓ COMPLETED |
|---|---|---|---|---|---|---|
| Edit Pretest Results | 3/19 - 4/15 | EJT | | MM,RP JSG | 12-15 | ___ |
| Tabulate Pretest Interviews | 3/26 - 4/15 | EJT | | MM,RP JSG | 13-15 | ___ |
| Analyze Pretest Results | 4/16 - 5/6 | EJT | | MM,RP JSG | 16-18 | ___ |
| Meet with Advisory Group and Methodology Consultant | 5/17 | JSG /MM | | MM,RP EJT | 20 | ___ |
| Revise Questionnaire | 4/23 - 5/6 | MM | | EJT RP JSG | 17-18 | ___ |
| Type and Print Questionnaire & Mail Letters | 4/30 - 5/13 | JSG | JSG | AD | 18-19 | ___ |
| Retrain Interviewers | 4/30 - 5/6 | EJT | | MM JSG | 18 | ___ |
| Schedule and Conduct Study Interviews | 5/21 - 9/16 | AA | JSG | | 21-37 | ___ |
| Edit Completed Questionnaire | 5/21 - 9/9 | JSG | | MM EJT | 21-36 | ___ |
| Code Study Interviews (Open-ended Questions) | 5/21 - 9/16 | EJT | | MM,RP JSG | 21-37 | ___ |
| Punch Cards | 5/21 - 9/16 | DP | EJT | | 21-37 | ___ |
| Clean Data | 6/4 - 10/14 | DP | EJT | | 23-41 | ___ |
| Plan Data Analyses | 7/30 - 10/14 | MM | | EJT RP JSG | 31-41 | ___ |
| Document File | 9/17 - 9/30 | DP | EJT | | 38-39 | ___ |
| Construct Data Files | 10/1 - 10/14 | DP | EJT | | 40-41 | ___ |
| Analyze Data | 10/15- 4/14 | MM | | EJT RP | 42-67 | ___ |

Figure 3 (Cont.)

ADOLESCENT SOCIALIZATION STUDY: SCHEDULE OF ACTIVITIES

| TASKS | DATES | RESPONSIBILITIES | LIAISON | PARTICIPANTS | WEEKS | ✓ COMPLETED |
|---|---|---|---|---|---|---|
| Prepare First Report | 3/11 - 6/30 | MM | | EJT<br>RP<br>JSG | 63-78 | |
| Submit First Report | 6/30 | MM | | | 78 | |

## 11. HUMAN SUBJECTS

### a. Risks to Human Subjects

There are essentially three areas of potential risk to respondents in this study: breach of confidentiality of information; coercion of minors to participate; and participation effects, i.e., some alteration of the adolescent's behavior as a result of having participated in the study.

The proposed methods for minimizing each of these risks will be described separately.

#### Confidentiality of Information

The proposed methods of drawing the sample of primary respondents will ensure that the investigators know as little as possible about them until after agreement to participate has been obtained. Eligible families (i.e., those having a daughter or son age 12-17) will be identified on the basis of brief telephone interviews as described above. The names and telephone numbers of potentially eligible families will be secured from census tract maps and a reverse telephone directory, both of which are public-access documents. Eligible families will be provided with information regarding the study's objectives, methods, and eligibility requirements before they are contacted by telephone to secure their participation.

In addition to the verbal consent implied by a family member's agreeing to schedule a set of interviews, written informed consent statements must be signed by each respondent in the family prior to conducting the interviews. One parent must also sign a form consenting to the adolescent's participation. The informed consent statements will describe the study's objectives and methods, and will specifically state that the respondent may elect not to answer any question or may withdraw from participation at the outset or during the course of the interview. The statement

will also guarantee confidentiality of all information provided by each respondent.

Similar imformed consent procedures will be used for interviews of same-sex and cross-sex friends. Friends will not, however, be informed of the fact that their names were obtained from the adolescents initially interviewed. This information would violate the confidentiality of the original respondents.

Once study respondents have been identified by the procedures described above, the following measures will be employed to ensure confidentiality of information:

- All questionnaires will be assigned a code number unique to the sampling unit. The codes and corresponding names of individuals will be kept in a locked file by the Project Manager. At no time will a questionnaire, complete or incomplete, bear the name of the respondent. With the exception of the project manager and the interviewer assigned to the unit, no one associated with the study will know the names of individual participants.

- Experienced interviewers will be employed. Interviewers, regardless of previous experience, will receive training that includes emphasis upon the importance of confidentiality of information. The project manager is a professional in the field of family planning, in which client privacy is central to the conduct of services.

- In order to further minimize access to confidential information by anyone associated with the project, the self-administered questionnaire will be handed to respondents with an envelope. Upon completion of the questionnaire, the respondent will place it in the envelope her(him)self and seal it before returning it to the interviewer for transmission to the investigators.

. All data based on this research will be reported in aggregate form. No individual respondents will be identified.

It is anticipated that the combination of a self-administered questionnaire bearing no individual identification, the small number of individuals who have access to the identity of respondents, and the locked files will guarantee maximum protection of the confidentiality of information provided by respondents.

Coercion of Adolescents to Participate

It would appear that the coercion of adolescents to participate would be an area of minimal potential risk, but it must be considered. The issue is whether an adolescent is likely to be forced in some manner to become a study participant against his/her will. As the investigators will have no knowledge of individual adolescents until and unless a form of agreement to participate--signed by both the primary respondent and his/her parents--is received, pressure to participate could not be applied by anyone involved with the research. In the cases of both the primary respondents and those named as friends by study subjects, initial contact will be made through the adolescent's parents, who have the right to refuse to allow their child to participate--without ever informing her/him of the invitation--if they so choose. The adolescent must also sign an agreement to participate. The potential for parents to exert pressure on their children to participate would seem to be miniscule. The parents will not have access to the child's responses to the questionnaire, so there would be no motivation to obtain information which a child might have withheld. Respondents will not be paid for participation so there would be no financial motivation for coercion. And most importantly, the rationale for requiring parental consent when minors participate in research is that parents are assumed to have the child's best interest in mind. We cannot anticipate that any prospective subject in this study would be pressured to participate by his/her parents.

Effect of the Study upon Respondents

There is no way to guarantee that participation in this study will have no impact upon respondents. The best that can be done is to minimize the potential for any negative impact that could conceivably result. Certainly, the right of refusal to participate is the first of these safeguards. A second safeguard is the involvement of the advisory groups in the development of questionnaires. The advisory groups, composed of peers of both adolescent and parent respondents from each ethnic group, will assist the investigators in developing questions that meet the objectives of the study and are acceptable in both content and language to all respondents. The pretest of the questionnaire will further refine both content and language for increased acceptability.

b. Benefits of Research

The nature of this research makes it difficult to separate the benefits to society from the benefits to individuals. The greatest anticipated benefit is that the research will begin to describe the etiology of adolescent sexual behavior, and thereby effect a reduction of negative outcomes of adolescent sexual behavior for both individuals and society. Unplanned, unwanted pregnancy and venereal disease are greater problems for individuals than they are for societies. If the fact of joint participation in this research is a stimulus to greater communication between adolescent respondents and their parents about sexual and contraceptive behavior, that, in itself, will be of benefit. There is ample evidence that openness of communication in these areas between parents and children is likely to have beneficial effects upon adolescent behavior.

A more general benefit of this research is expected to be in the expansion of comparative information on socialization processes of various age, sex, and SES groups.

In short, the investigators believe that the potential benefits of this research--both to individuals and to society--far outweigh the risks to individuals, and that these risks, minimal at the outset, have been further reduced by the methods described.

## D. SIGNIFICANCE OF THE RESEARCH

This research will increase our knowledge of the determinants of adolescent fertility in a variety of ways.

### 1. DETERMINATION AND MEASUREMENT OF STAGES OF HETEROSEXUAL BEHAVIOR

One of our research objectives is to identify discrete stages of sexual behavior and to determine whether or not they are progressive. As a consequence of our measurement of these patterns of conduct over time, we will be able to estimate the conditional probabilities associated with transition from one stage to another for different age, racial, and SES groups. Thus, we will be able to determine which transitions are most important in terms of their impacts on pregnancy outcomes; i.e., to what extent delay of those transitions could reduce adolescent fertility.

### 2. IDENTIFICATION OF AGE, SEX, AND SES DIFFERENCES IN HETEROSEXUAL BEHAVIOR AND CONTRACEPTIVE USE

While previous studies have demonstrated that age, sex, and SES influence sexual and contraceptive behavior among adolescents, these results are limited to two respects. First, they typically pertain to older adolescents who, in most cases, have made contact with a contraceptive service facility. Little is known about such behavior among younger, less-experienced youth. Second, most prior studies have dealt only with adolescent females. As a result, social and psychological factors affecting the sexual and contra-

ceptive behavior of young males are not well understood. Finally, while SES differences in these behaviors are fairly well documented, their interactive relationships with age and sex variables require further examination.

3. RELATIONSHIP OF SOCIALIZATION PROCESSES TO PATTERNS OF HETEROSEXUAL BEHAVIOR AND CONTRACEPTIVE USE

Researchers generally agree that patterns of sexual and contraceptive behavior result from a process of psychosocial development. The socialization influences to which children and adolescents are exposed shape their attitudes toward sexuality and channel their behavioral responses to opportunities to engage in sexual relationships. Likewise, attitudes toward the use of contraceptives, as well as actual contraceptive decisions, are related to socialization experiences. Nonetheless, few studies have been concentrated on the interactive processes from which psychosexual identities are constructed and acted out. This research, focusing on the critical period of adolescence, will provide an improved understanding of the mechanisms through which parents and peers influence the course of heterosexual development for young women.

4. DETERMINATION OF ANTECEDENTS OF ADOLESCENT HETEROSEXUAL AND CONTRACEPTIVE BEHAVIOR THAT MAY BE SUSCEPTIBLE TO POLICY MANIPULATION

Among the antecedent variables in our model, several could be susceptible to policy manipulation. For example, peer beliefs about contraception can be changed through more explicit sex education in the schools and in other adolescent activity groups. For adolescents who rely strongly on their peers as sources of their beliefs, an increase in the accuracy of group beliefs could have an effect on contraceptive behavior in addition to the effects on the adolescent's own beliefs. For variables that are primarily under parental control (e.g., opportunity), the effect of such variables on behavior might be communicated to parents so that they can change the extent to

which they faciliatate or provide barriers for sexual activity, if they so desire. If a manipulable antecedent is found to be irrelevant for sexual behavior, policymakers and/or parents should be encouraged not to spend time and effort on that variable.

5. EXPLANATION OF ACTUAL PREGNANCY OUTCOMES

Although pregnancy is not a central concern for this research which is focused on the determinants of heterosexual and contraceptive behavior, it will be possible to separate those girls who do become pregnant during the course of the study (as well as those males who father a pregnancy) for more detailed analysis. While the number of expected pregnancies is not large (on the order of 25-30 of the original 480 respondents to be followed over the two-year period), it will be instructive to determine which antecedent conditions are the best predictors of pregnancy, abortion, adoption, childbirth and/or marriage.

6. DETERMINATION OF CONTRACEPTIVE NEEDS SPECIFIC TO ADOLESCENTS

There is ample evidence that the contraceptive methods currently offered by a variety of providers are inadequate for consistent and effective use by the majority of adolescents. The information obtained from this research on heterosexual attitudes, opportunities, norms, beliefs, and activities and their relationships to contraceptive behavior will permit an assessment of the applicability of currently available contraceptive methods to the needs of adolescents. Our data may suggest possibilities for innovative procedures that could be incorporated into contraceptive marketing and delivery systems, resulting in more effective means of preventing unwanted pregnancies among adolescents.

In addition, this work will also provide the following more general contributions.

## 7. FURTHER INVESTIGATION OF ADOLESCENT SOCIALIZATION PROCESSES

Since parents and society have an interest in effective socialization of adolescents, it is useful to understand how social information is transmitted to and internalized by the younger members of society. Although this research is concentrated on one particular aspect of social conduct, the methods and effectiveness of socialization in this behavioral area are not necessarily different from those of socialization in other behavioral areas. Discrepancies between the norms of socialization agents and the adolescent's norms, clarity of norms, rejection of norms, and techniques to obtain norm compliance (e.g., restriction of opportunity) are concepts that are common to socialization for many different types of behavior. Therefore, the findings of this research should contribute to knowledge about the general process of adolescent socialization. Of even greater significance for our knowledge of socialization processes is the fact that this study is genuinely longitudinal. As Scott (1971: 140-143) emphasizes, such studies are extremely rare in sociology and psychology even though they are crucial to the study of the socialization process qua process.

## 8. DEVELOPMENT AND APPLICATION OF IMPROVED MEASUREMENT TECHNIQUES

As pointed out in the section on measurement, the independent interviews of adolescents, parents, and peers provide data on actual norms and beliefs to which the adolescent is exposed, in addition to data on perceived norms. These independent data provide an opportunity to contrast actual external norms, perceived external norms, and internalized norms in order to investigate the role of discrepancies on attitudinal and behavioral outcomes. The identification and measurement of opportunity variables is included for the first time in a study of adolescent sexuality. Again, contrasting these with perceived opportunities will provide data on the role of discrepant perceptions on actual behavior.

REFERENCES

Akpom, C. A., K. L. Akpom, and M. Davis
1976 "Prior Sexual Behavior of Teenagers Attending Rap Sessions for The First Time." Family Planning Perspectives 8 (July/August): 203-206.

Arnold, C. B.
1972 "The Sexual Behavior of Inner City Adolescent Condom Users." Journal of Sex Research 8 (November): 298-309.

Bowerman, C. E. and G. H. Elder
1964 "Variations in Adolescent Perception of Family Power Structure." American Sociological Review 29 (August): 551-567.

Burgess, E. W. and P. Wallin
1953 Engagement and Marriage. New York: J. B. Lippincott Co.

Campbell, Arthur A.
1968 "The Role of Family Planning in the Reduction of Poverty." Journal of Marriage and the Family 30 (October): 236-245.

Center for Disease Control
1975 Abortion Surveillance: 1973. (May).

Center for Disease Control
1976 Morbidity and Mortality Weekly Report. Annual Supplement, Summary 1975. 24(August).

Christensen, H. T.
1960 "Cultural Relativism and Premarital Sex Norms." American Sociological Review 25 (February): 31-39.

Christensen, H. T.
1966 "Scandanavian and American Sex Norms: Some Comparisons, with Sociological Implications." Journal of Social Issues 22 (April): 60-75.

Christensen, H. T. and C. F. Gregg
1970 "Changing Sex Norms in Scandanavia and America." Journal of Marriage and the Family 32 (November): 616-627.

Clausen, John (ed.)
1968 Socialization and Society. Boston: Little, Brown and Co.

Cloward, R. A. and L. E. Ohlin
1960 Delinquency and Opportunity: A Theory of Delinquent Gangs. New York: The Free Press.

Cutright, P.
1972 "The Teenage Sexual Revolution and the Myth of an Abstinent Past." Family Planning Perspectives 4 (January): 24-31.

Cvetkovich, George, Barbara Grote, Ann Bjorseth, and Julia Sarkissian
1975 "On the psychology of adolescents' use of contraceptives." The Journal of Sex Research 11, 3(August): 256-270.

Davis, Kingsley
1976 "Sexual Behavior." pp. 219-261 of Contemporary Social Problems, ed. Robert K. Merton and Robert Nisbet. New York: Horcourt Brace Jovanovich, Inc.

Edwards, W.
1961 "Behavior Decision Theory." Annual Review of Psychology 12: 473-498.

Ehrmann, W. H.
1959 Premarital Dating Behavior. New York: Holt, Rinehart and Winston.

Evans, J. R., G. Selstad, and W. H. Welcher
1976 "Teenagers: Fertility Control Behavior and Attitudes Before and After Abortion, Childbearing or Negative Pregnancy Test." Family Planning Perspectives 8 (July/August): 192-200.

Finkel, M. L. and D. J. Finkel
1975 "Sexual and Contraceptive Knowledge, Attitudes and Behavior of Male Adolescents." Family Planning Perspectives 7 (November/December): 256-260.

Fishbein, M. and I. Azjen
1975 Belief, Attitude, Intention and Behavior. Reading, Mass.: Addison-Wesley.

Furstenberg, F. F., Jr.
1976a "The Social Consequences of Teenage Parenthood." Family Planning Perspectives 8 (July/August): 148-164.

1976b Unplanned Parenthood: The Social Consequences of Teenage Childbearing. New York: The Free Press.

Gagnon, J. H. and W. Simon
1973 Sexual Conduct: The Social Sources of Human Sexuality. Chicago: Aldine Publishing Co.

Gibbs, J. P.
1965 "Norms: The Problem of Definition and Classification." American Journal of Sociology 70 (March): 586-594.

Goldsmith, S., M. O. Gabrielson, I. Gabrielson, V. Matthews, and L. Potts
1972 "Teenagers, Sex and Contraception." Family Planning Perspectives 4 (January): 32-42.

Goslin, D. A. (ed.)
1969 Handbook of Socialization Theory and Research. Chicago: Rand McNally Co.

Guttman, L.
1944 "A Basis for Scaling Qualitative Data." American Sociological Review 9 (April): 139-150.

Jaffe, F. S. and J. G. Dryfoos
1976 "Fertility Control Services for Adolescents: Access and Utilization." Family Planning Perspectives 8 (July/August): 167-175.

Kandel, D. B. and G. S. Lesser
1972 Youth in Two Worlds. San Francisco: Jossey-Bass, Inc.

Libby, R. and G. D. Nass
1971 "Parental Views on Teenage Sexual Behavior." Journal of Sex Research 7 (August): 226-236.

Merton, R. K.
1957 Social Theory and Social Structure, 2nd ed. New York: The Free Press.

National Center for Health Statistics
1975 "Advance Report: Final Natality Statistics, 1974." Monthly Vital Statistics Report (November).

Nettler, G.
1974 Explaining Crime. New York: McGraw-Hill Book Co.

Newcomb, T. M., R. H. Turner, and P. E. Converse
1965 Social Psychology: The Study of Human Interaction. New York: Holt, Rinehart and Winston.

Oppel, W. and A. Royston
1971 "Teen-Age Births: Some Social, Psychological and Physical Sequelae." American Journal of Public Health 61 (April): 751-756.

Reiss, I. L.
1960 Premarital Sexual Standards in America. New York: The Free Press.

Reiss, I. L.
1967 The Social Context of Premarital Sexual Permissiveness. New York: Holt, Rinehart and Winston.

Reichelt, P. A. and H. W. Werley
1975 "Contraception, Abortion and Venereal Disease: Teenagers' Knowledge and the Effect of Education." Family Planning Perspectives 7 (March/April): 83-88.

Scanlon, J.
1975 "Self-Reported Health Behavior and Attitudes of Youths 12-17 Years: United States." Vital and Health Statistics. Series 11, No. 147. Washington, D.C. U.S. Department of Health, Education, and Welfare.

Scott, J. F.
1971 Internalization of Norms: A Sociological Theory of Moral Commitment. Englewood Cliffs, N. J.: Prentice-Hall, Inc.

Settlage, D. S. F., S. Baroff, and D. Cooper
1973 "Sexual Experience of Young Teenage Girls Seeking Contrceptive Assistance for the First Time." Family Planning Perspectives 5 (Fall): 223-226.

Shah, F., M. Zelnik, and J. F. Kantner
1975 "Unprotected Intercourse Among Unwed Teenagers." Family Planning Perspectives 7 (January): 39-44.

Sorensen, Robert C.
1973 Adolescent Sexuality in Contemporary America: Personal Values and Sexual Behavior Ages Thirteen to Nineteen. New York: World Publishing Co.

Sullivan, J. L.
1974 "Multiple Indicators: Some Criteria of Selection." Pp. 243-269 in H. M. Blalock (ed.), Measurement in the Social Sciences. Chicago: Aldine.

Triandis, H. C.
1971 Attitude and Attitude Change. New York: John Wiley and Sons.

Trussell, T. James
1976 "Economic Consequences of Teenage Childbearing." Family Planning Perspectives 8 (July/August): 184-190.

Vener, A. M. and C. S. Stewart
1974 "Adolescent Sexual Behavior in Middle America Revisited, 1970-1973." Journal of Marriage and the Family 36(4): 728-735.

Zelnik, M. and J. F. Kantner
1972a "Sexuality, Contraception and Pregnancy Among Unwed Females in the United States." Pp. 355-374 in Demographic and Social Aspects of Population Growth, ed. C. F. Westoff and R. Parke, Jr. Commission on Population Growth and the American Future, Research Reports, Vol. I., Washington, D.C.: U.S. Government Printing Office.

Zelnik, M. and J. F. Kantner
1972b "The Probability of Premarital Intercourse." Social Science Research 1:335-341.

Zelnik, M. and J. F. Kantner
1973 "Sex and Contraception among Unmarried Teenagers." Pp. 7-18 in Toward the End of Growth, ed. C. F. Westoff. Englewood Cliffs, N.J.: Prentice-Hall, Inc.

Zelnik, M. and J. F. Kantner
1974 "The Resolution of Teenage First Pregnancies." Family Planning Perspectives 6 (Spring): 74-80.

Zigler, E. and I. L. Child
1969 "Socialization." Pp. 450-589 in Handbook of Social Psychology, 2nd ed. Vol. III, ed. G. Lindzey and A. Aronson. Reading, Mass.: Addison-Wesley Publishing Co.